OneCommand Manager™ for VMware vCenter Version 1.4 User Manual

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1. Introduction

Emulex® OneCommand Manager™ for VMware vCenter (OCM for VMware vCenter) integrates the in-depth management of Emulex LightPulse® (LP) host bus adapters (HBAs) and OneConnect™ universal converged network adapters (UCNAs) into the VMware vCenter management console.

This comprehensive solution builds upon standard Emulex CIM management providers and advanced functionality delivered with the Emulex OneCommand Manager application to present native configuration management, status monitoring, and online maintenance of Emulex adapters in VMware ESX and ESXi environments, using a graphical (GUI) or command line (CLI) user interface.

OCM for VMware vCenter supports the following VMware platforms:

- VMware ESXi 5.1
- VMware ESXi 5.0
- VMware ESXi 4.1
- VMware ESX 4.1

OCM for VMware vCenter can be hosted/registered on the following servers:

- vCenter Server 5.1
- vCenter Server 5.0
- vCenter Server 4.1

OCM for VMware vCenter version 1.4 is supported for the following operating systems:

- Windows Server 2008 SP2 (or later) – Standard, Enterprise and Datacenter editions (32 bit, x86) and (64 bit, x86_64)
- Windows Server 2008 R2 – Standard, Enterprise and Datacenter editions (32 bit, x86) and (64 bit, x86_64)
- Windows 7 (64-bit)
- Windows 2012 (64 bit)

Refer to Table 1-1, Support Provided by Emulex CIM Provider Versions, on page 16 to determine the support provided by your Emulex Common Information Model (CIM) provider.

Note: Screen shots in this manual are for illustrative purposes only. Your system information can vary.

The features available in OCM for VMware vCenter are determined by the version of Emulex CIM provider installed for Emulex LightPulse HBAs and OneConnect UCNAs.

The following table lists the Emulex OneCommand Manager application support provided by each Emulex CIM provider package and the individual FC and UCNA providers in each package. The Emulex CIM provider packages can be downloaded from the Emulex website.

Note: In Table 1-1, "✓" indicates the feature is supported on the particular Emulex CIM provider version and OCM for VMWare vCenter. In the OCM for VMware vCenter v1.3 and v1.4 column, an "✓" indicates that this feature is supported in both v1.3 and 1.4 unless otherwise indicated. "N/A" table cells indicate that the feature is not applicable.

Table 1-1 Support Provided by Emulex CIM Provider Versions

Emulex OneCommand Manager Application Features	ELX CIM Provider Package v3.6		ELX CIM Provider Package v3.7		OCM for VMware vCenter v1.3 and v 1.4
	UCNA	FC	UCNA	FC	
Discover virtual ports connected to an FC or FCoE port	✓	✓	✓	✓	✓
View virtual port information in a cluster (host-centric mode)	N/A	N/A	N/A	N/A	✓
Discover hosts, adapters (FC, FCoE, NIC and iSCSI), targets, and LUNs for selected ESX hosts	✓	✓	✓	✓	✓
Discover hosts and adapters (FC and FCoE) for selected ESX fabrics	✓	✓	✓	✓	✓
Display firmware revision	✓	✓	✓	✓	✓
Display boot code version	✓	✓	✓	✓	✓
Update firmware and FC boot code on a single adapter	✓	✓	✓	✓	✓
Update firmware and FC boot code on a per-fabric basis	N/A	N/A	N/A	N/A	✓
Change WWPN or WWN for FC adapters	✓	✓	✓	✓	✓
Locate adapters with beaconing	✓	N/A	✓	✓	✓
Display PCI-Express registers	✓	✓	✓	✓	✓
Physical Loopback test	✓	N/A	✓	N/A	✓ UCNA only
MAC loopback test	✓	N/A	✓	N/A	✓ UCNA only
PCI loopback test	N/A	✓	N/A	✓	✓ FC only
Internal and External loopback test	✓	N/A	N/A	✓	✓ FC only

Table 1-1 Support Provided by Emulex CIM Provider Versions (Continued)

Emulex OneCommand Manager Application Features	ELX CIM Provider Package v3.6		ELX CIM Provider Package v3.7		OCM for VMware vCenter v1.3 and v 1.4
	UCNA	FC	UCNA	FC	
Echo test	N/A	✓	✓	✓	✓ FC Only
POST test	N/A	✓	N/A	✓	✓ FC only
TDR tests	✓	N/A	✓	N/A	✓ UCNA – 10G Base-T only
Batch update firmware and FC boot code to multiple adapters	N/A	N/A	N/A	N/A	✓
Enable/disable ports	N/A	N/A	✓	✓	✓
Get driver parameters (Global and Port)	✓	✓	✓	✓	✓
Set global driver parameters to adapters	✓	✓	✓	✓	✓
Set port driver parameters to adapters	✓	✓	✓	✓	✓
Target and LUN information	✓	✓	✓	✓	✓
Reset Port (FC and FCoE only)	✓	✓	✓	✓	✓
Toggle PFC throttle (FCoE only)	✓	N/A	✓	N/A	✓ UCNA OCe10XXX series only
View VPD	✓	✓	✓	✓	✓
View transceiver data	✓	✓	✓	✓	✓
View physical data for 10GBase-T adapters	✓	N/A	✓	N/A	✓ UCNA - 10GBase-T only
iSCSI management	✓	N/A	✓	N/A	✓
Enable/disable FIP data	✓	N/A	✓	N/A	✓ UCNA only
DCB configuration	✓	N/A	✓	N/A	✓ UCNA only

Table 1-1 Support Provided by Emulex CIM Provider Versions (Continued)

Emulex OneCommand Manager Application Features	ELX CIM Provider Package v3.6		ELX CIM Provider Package v3.7		OCM for VMware vCenter v1.3 and v 1.4
	UCNA	FC	UCNA	FC	
Display flash contents (wakeup parameters/flash load list)	✓	✓	✓	✓	✓ FC only
Export SAN configuration information at cluster level and at host level	N/A	N/A	N/A	N/A	✓
Perform diagnostic dump at the adapter and port level	✓	✓	✓	✓	✓
Personality (protocol) change and licensing	✓	N/A	✓	N/A	✓ UCNA only
iBFT support	N/A	N/A	✓	N/A	✓ OCM for VMware vCenter v 1.4 for UCNAs only
Bandwidth softcapability	N/A	N/A	✓	N/A	✓ OCM for VMware vCenter v 1.4 for UCNAs only
UMC CLI	N/A	N/A	✓	N/A	✓ OCM for VMware vCenter v 1.4 for UCNAs only

Abbreviations

ASIC	application-specific integrated circuit
BIOS	basic input-output system
BOFM	IBM BladeCenter Open Fabric Manager
CDB	command descriptor block
CHAP	Challenge Handshake Authentication Protocol
CIM	Common Interface Model
CIN	Cisco, Intel, Nuova (data center bridging exchange)
CLI	command line interface
CLP	command line protocol
CNA	Converged Network Adapter
COS	console operating system

CRC	cyclic redundancy check
CSV	comma-separated values
DAC	direct-attach copper
DCB	data center bridging
DCBX	data center bridging exchange
DHCP	Dynamic Host Configuration Protocol
DMA	direct memory access
EC	engineering change level
ETO	extended time out
FC	Fibre Channel
FCoE	Fibre Channel over Ethernet
FIP	FCoE Initialization Protocol
FPMA	fabric-provided MAC address
FW	firmware
GUI	graphical user interface
HW	hardware
HBA	host bus adapter
iBFT	iSCSI boot firmware table
IEEE	Institution of Electrical and Electronics Engineers
I/O	input/output
IP	internet protocol
IPL	initial program load
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
iSCSI	internet Small Computer System Interface
ISID	initiator session identifier
iSNS	internet Storage Name Server
KB	kilobyte
LDPC	low-density parity check
LDTO	link down time out
LED	light emitting diode
LIP	Loop Initialization Primitive
LLDP	Link Layer Discovery Protocol
LUN	logical unit number
MAC	media access control
MDI	medium dependent interface
MN	manufacturer ID

MSE	mean squared error
MTU	maximum transmission unit
NCSI	Network Controller Sideband Interface
NIC	network interface card (or controller)
NOS	not operational sequence
NVP	nominal velocity of propagation
NVRAM	non-volatile random-access memory
OCM	OneCommand™ Manager
OS	operating system
OUI	organizationally unique identifier
PDU	protocol data unit
PFC	priority-based flow control
PGID	priority group ID
PHY	physical layer
PLL	phase lock loop
POST	power-on self-test
PXE	Pre-boot Execution Environment
QoS	quality of service
R2T	request to transmit
Recv	received
RHEL	Red Hat Enterprise Linux
RPI	remote port indicator
Rx	receive
SAN	storage area network
SCSI	Small Computer System Interface
SFCB	Small Footprint CIM Broker
SFP	small form factor pluggable
SLES	SUSE Linux Enterprise Server
SLI	scalable link interface
SNMP	Simple Network Management Protocol
SNR	signal to noise ratio
TCP	Transmission Control Protocol
TDR	time-domain reflectometer
Tx	transmit
UCNA	Universal Converged Network Adapter
ULP	Upper Layer Protocol
UMC	Universal Multichannel

UTF-8	U(Universal Character Set) Transformation Format –8 bit
VPD	vital product data
VLAN	virtual local area network
VLANID	virtual local area network id
vNIC	virtual NIC
VPort	virtual port
WWN	world wide name
WWNN	world wide node name
WWPN	world wide port name
VM	virtual machine
Xmt	transmitted
XRI	exchange resource indicator
XML	extensible markup language

2. Installing and Uninstalling OCM for VMware vCenter Components

Best Installation Practices

OCM for VMware vCenter provides real-time management as a plug-in through the VMware vSphere console and VMware Web Client. The web client allows you to run OCM for VMware vCenter from the vSphere Web client. System performance is directly influenced by the speed and efficiency of the underlying network infrastructure. The following bullets outline recommendations to achieve the best application response times.

- To avoid network latencies, ensure that all the managed ESX hosts, the vCenter Server and the VI infrastructure client are in the same network.
- To avoid configuration conflicts, install the vCenter Server and the VI infrastructure client on different hosts within the same network.

Prerequisites

Hardware Requirements

- Physical or virtual (x86/x86_64) servers with a minimum RAM of 2 Gb/s and 250 Mb/s of disk space

Software Requirements

- VMware ESX 4.1 and ESXi 4.1, 5.0, and 5.1 environments
- Operating system – Windows Server 2008 (32 and 64 bit), Windows 7 (64 bit) or Windows 2012 (64 bit)
- Adobe Flash Player 11.2 or later
- vCenter Server 4.1, 5.0 or 5.1
- VI Infrastructure Client 4.1, or vSphere Client 5.0 or 5.1.
- vSphere Web Client to manage vcenter server using web client instead of vSphere client
- OneCommand Manager Core Application Kit (for VMware ESX COS environments only)

  Note: The OneCommand Manager Core Application Kit must be downloaded and installed on the ESX server that is to be managed by OCM for VMware. The OneCommand Manager Core Application Kit also includes the associated CIM providers.

Note: On the system where OCM for VMware vCenter is installed, make sure the port numbers configured during the installation are open and dedicated to the OCM for VMware vCenter server only. No other service should be listening on this port.

- Emulex CIM providers
  - FC provider 2.2.42.1 or later
  - UCNA provider 1.3a or later
- Driver and Firmware Requirements

  See the Emulex website for the latest compatible driver and firmware versions.

Installing OCM for VMware vCenter

Note: As part of the OCM for VMware vCenter installation, the OCM for VMware vCenter Web Client components are installed and registered.

To install OCM for VMware vCenter in Windows:

1. From the Emulex website, download the **ELXOCM-VMware-vCenter-<*version*>-Setup.exe** installation file to your system.
2. Navigate to the system directory to which you downloaded the file.
3. Double-click **ELXOCM-VMware-vCenter-<*version*>-Setup.exe**. The OCM for VMware vCenter window appears.
4. Click **Next**. The License agreement window appears
5. Read the agreement and select the **I agree to these terms and conditions** checkbox and click **Next**. The Installation Options window with the default Installation folder appears.

Figure 2-1 Installation Options Window

6. Ensure that the **OCM for VMware vCenter** checkbox is selected.

7. Program files install by default to c:\Program Files\Emulex. To change this location, click **Browse** and navigate to where you want the program files to reside.
8. Click **Install**. The Operation in progress screen appears. When the process is complete, the OCM for VMware vCenter configuration window appears.

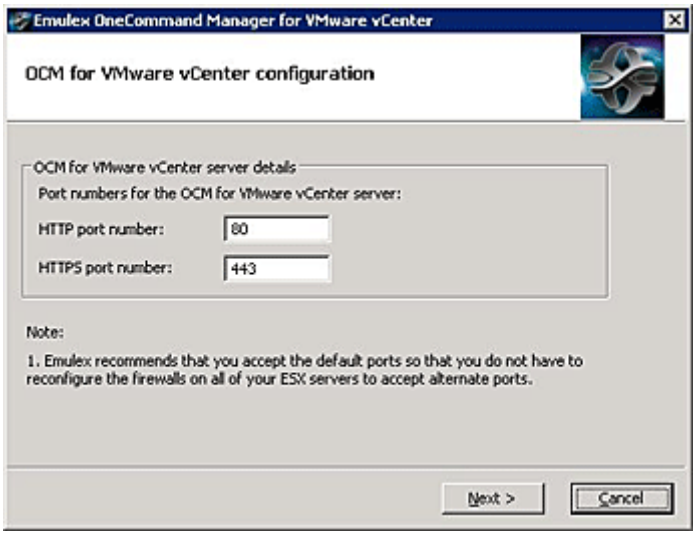
Emulex OneCommand Manager for VMware vCenter
OCM for VMware vCenter configuration
OCM for VMware vCenter server details
Port numbers for the OCM for VMware vCenter server:
HTTP port number:
80
HTTPS port number:
443
Note:
1. Emulex recommends that you accept the default ports so that you do not have to reconfigure the firewalls on all of your ESX servers to accept alternate ports.
Next >
Cancel

Figure 2-2 OCM for VMware vCenter Configuration Window

Default port numbers for OCM for VMware vCenter server are displayed.

Note: The Windows firewall setting must allow incoming connections on the HTTP and HTTPS ports that you configure here.

If the port numbers are already in use, a warning appears next to the port number.

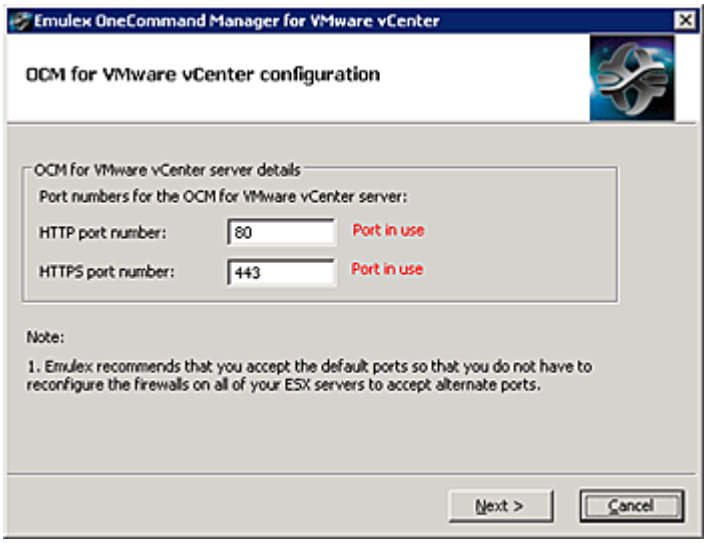
Emulex OneCommand Manager for VMware vCenter
OCM for VMware vCenter configuration
OCM for VMware vCenter server details
Port numbers for the OCM for VMware vCenter server:
HTTP port number:
80
Port in use
HTTPS port number:
443
Port in use
Note:
1. Emulex recommends that you accept the default ports so that you do not have to reconfigure the firewalls on all of your ESX servers to accept alternate ports.
Next >
Cancel

Figure 2-3 OCM for VMware vCenter Configuration Window with Port in Use Warning

9. Click **Next**. The Operation in progress screen appears. When the installation process is complete a message prompts you to launch the registration utility

10. Click **Yes**. The Register/Unregister dialog box appears in a new browser window.

Figure 2-4 Register/Unregister Dialog Box

11. Enter the following details of the vCenter Server:
    - vCenter Server Name – The IP address of the vCenter Server.
    - vCenter Server HTTPS Port – The HTTPS port number of the vCenter Server.

      Note: The vCenter Server HTTPS port is by default 443. You can change this value if you have configured a different HTTPS port while installing the vCenter.

    - Username – The user with administrative privileges.
    - Password – The user password.
    - OCM Plug-in Server Name – The host name or IP address of the current host with which the plug-in must be registered. Select the IP address or host name of the current machine as discovered by the OCM for VMware vCenter server and vCenter client:
      - The host name (default)
      - The local IP address
      - Other IP addresses
12. Click **Register** to register OCM for VMware vCenter with a new vCenter Server.

    Note: You can unregister an existing OCM for VMware vCenter by clicking **Unregister**.

    Note: If you change the IP address or the subnet mask of the machine hosting the plug-in server, you must unregister and register OCM for VMware Center.

13. When the operation is successful, a message is displayed. Click **OK**.
14. Close the browser window. The Installation completed window appears.Click **Finish**. An OCM for VMware vCenter Registration icon is created on the desktop. You do not need to reboot the system.

Verifying the OCM for VMware vCenter Installation

To verify OCM for VMware vCenter installation:

1. Log in to the vCenter Server through the VMware vSphere console.
2. Enter the IP address and credentials of the vCenter Server where OCM for VMware vCenter is registered. The vSphere console appears.

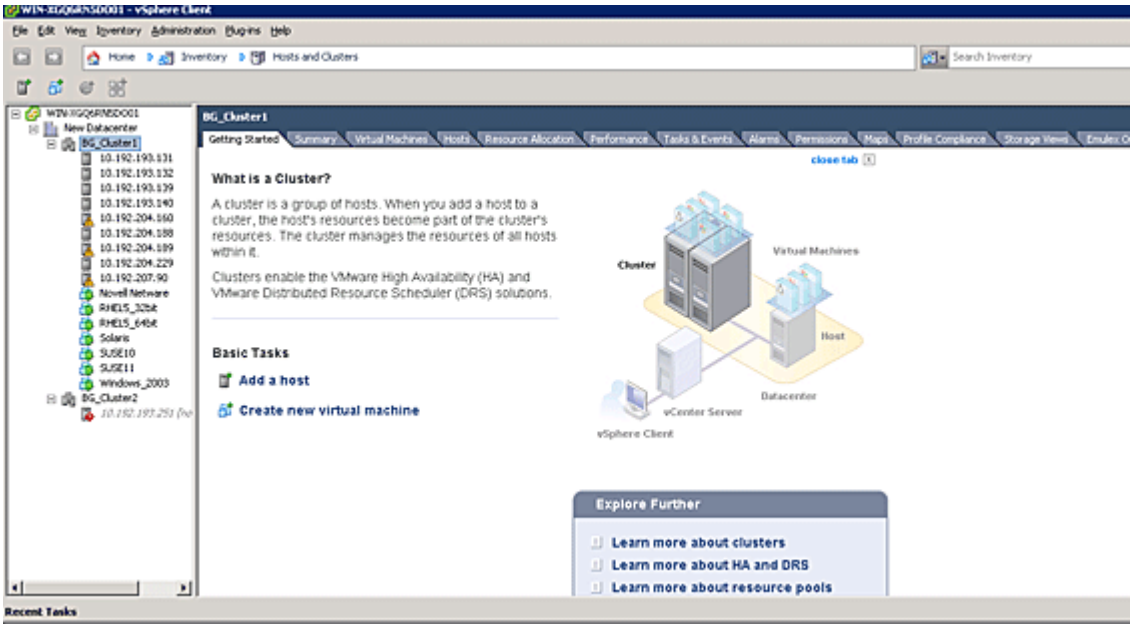
What is a Cluster?
A cluster is a group of hosts. When you add a host to a cluster, the host's resources become part of the cluster's resources. The cluster manages the resources of all hosts within it.
Clusters enable the VMware High Availability (HA) and VMware Distributed Resource Scheduler (DRS) solutions.
Basic Tasks
Add a host
Create new virtual machine
Explore Further
Learn more about clusters
Learn more about HA and DRS
Learn more about resource pools
Cluster
Virtual Machines
Host
Datacenter
vCenter Server
vSphere Client
Recent Tasks

Figure 2-5 vSphere Console

3. In the vSphere console select **Plug-ins** from the menu bar and select **Manage Plug-ins**. The Plug-in Manager window appears.

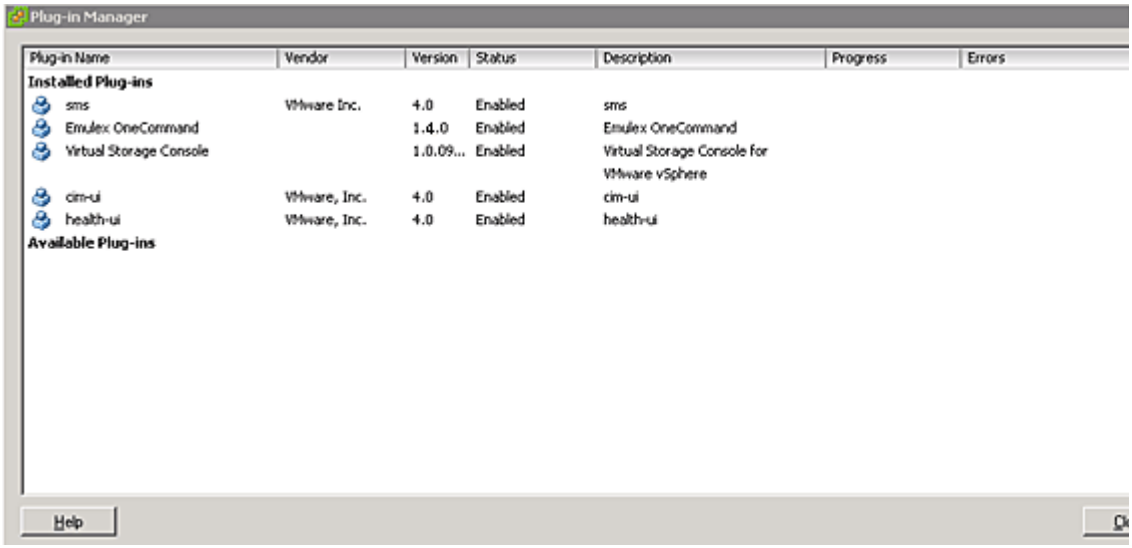

Figure 2-6 Plug-in Manager Window

4. In the Plug-in Manager window, check the status of OCM for VMware vCenter (Emulex OneCommand). If the OCM for VMware vCenter installation is complete, the status of OCM for VMware vCenter (Emulex OneCommand) is enabled by default.

Enabling and Disabling OCM for VMware vCenter

If you disable OCM for VMware vCenter, the Emulex OneCommand tab immediately disappears from the vSphere console. If you enable OCM for VMware vCenter, the Emulex OneCommand tab immediately appears on the vSphere console.

To change the status of OCM for VMware vCenter (Emulex OneCommand in Figure 2-7):

1. Log in to the vCenter Server through the VMware vSphere console.
2. Enter the IP address and credentials of the vCenter Server where OCM for VMware vCenter is registered. The vSphere console appears.
3. In the vSphere console select **Plug-ins** from the menu bar and select **Manage Plug-ins**. The Plug-in Manager window appears.
4. Click the Emulex OneCommand row. A context menu appears.

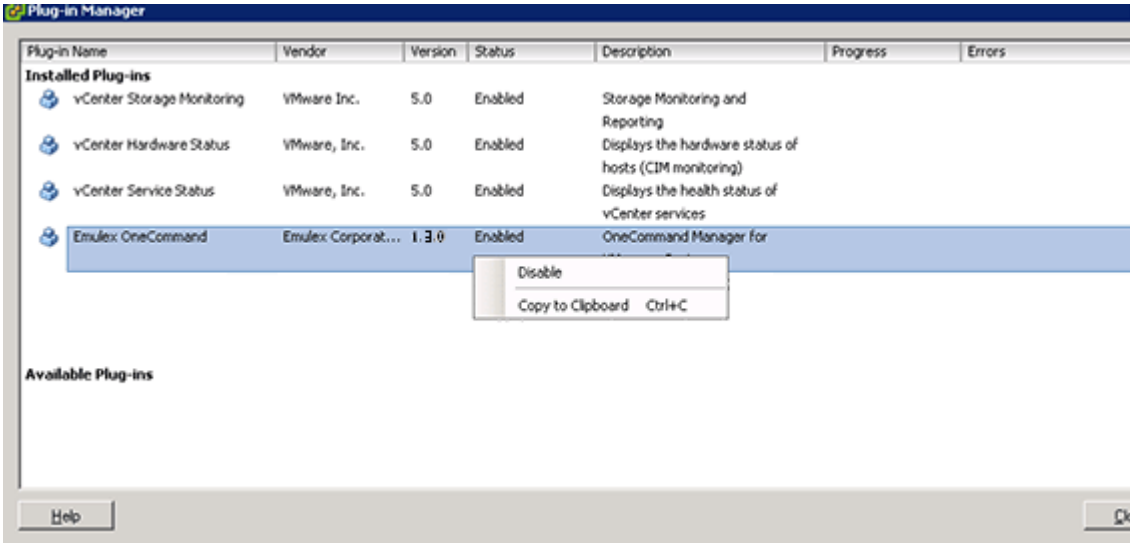

Figure 2-7 Plug-in Manager with Selected Row

5. Select **Enable** or **Disable**.

Registering and Unregistering OCM for VMware vCenter

Note: If you are using the vSphere Web Client, you must verify that the vSphere Web Client and the vCenter server are registered to the same vCenter Single Sign On server to ensure that the vSphere Web Client can access the vCenter server inventory.

To register or unregister OCM for VMware vCenter with a new vCenter Server:

1. Double-click the **OCM for VMware vCenter Registration** icon on the desktop. This icon is created when OCM for VMware vCenter is successfully installed. The register/unregister dialog box is displayed.

Figure 2-8 Register/Unregister Dialog Box

2. Enter the following details of the vCenter Server:
   - vCenter Server Name – The IP address of the vCenter Server.
   - vCenter Server HTTPS Port – The HTTPS port number of the vCenter Server.
   - The vCenter Server HTTPS port is by default 443. You can change this value if you have configured a different HTTPS port while installing the vCenter.
   - Username – The user with administrative privileges.
   - Password – The user password.
   - OCM Plug-in Server Name – The host name or IP address of the current host with which the plug-in must be registered. Select the IP address of the current machine as discovered by the OCM for VMware vCenter server and vCenter client:
     - The local IP address (default)
     - The host name
     - Other IP addresses
3. Do one of the following:
   - Click **Register** to register OCM for VMware vCenter with a new vCenter Server.

   -or-

   - Click **Unregister** to unregister an existing OCM for VMware vCenter with a vCenter Server.

Note: If you change the IP address or the subnet mask of the machine hosting the plug-in server, you must unregister and re-register OCM for VMware Center.

4. When the operation is successful, a message is displayed. Click **OK**.
5. Close the browser window.

Note: OCM for VMware vCenter can be registered with more than one vCenter Server.

Uninstalling OCM for VMware vCenter

Caution: When you uninstall OCM for VMware vCenter, ensure that you do not delete the default configuration and log files that are stored in the %TEMP%\Emulex\OCM for VMware directory. If these files are deleted, all historical information of active management performed from the host is permanently lost.

Before you uninstall OCM for VMware vCenter, you must unregister it from the vCenter Server. For more information, refer to "Using OCM for VMware vCenter" on page 31.

To uninstall OCM for VMware vCenter in a Windows system:

1. Double-click **ELXOCM-VMware-vCenter-<version>-Setup.exe**. The OCM for VMware vCenter window prompts you to reinstall/uninstall the application. Select **Uninstall the application completely** and click **Next**. A progress window is displayed.

   The screen indicating the detection of OCM for VMware vCenter appears.
2. Click **OK**. When uninstallation is complete, the Uninstallation Completed window is displayed.
3. Click **Finish**. You do not need to reboot the system.

Reinstalling OCM for VMware vCenter

To reinstall OCM for VMware vCenter in a Windows system:

1. Double-click **ELXOCM-VMware-vCenter-<version>-Setup.exe**. The OCM for VMware vCenter window prompts you to reinstall/uninstall the application.
2. Select **Re-install the application** and click **Next**. A progress window is displayed.

   The OCM for VMware vCenter window appears.
3. Click **Next**. The License agreement screen appears.
4. Read the agreement and select the **I agree to these terms and conditions** checkbox and click **Next**. The Installation Options window with the previous installation folder appears (Figure 2-1).

5. Click **Install**. OCM for VMware vCenter is uninstalled. The operation in progress window appears. When the process is complete, the OCM for VMware vCenter configuration window appears.

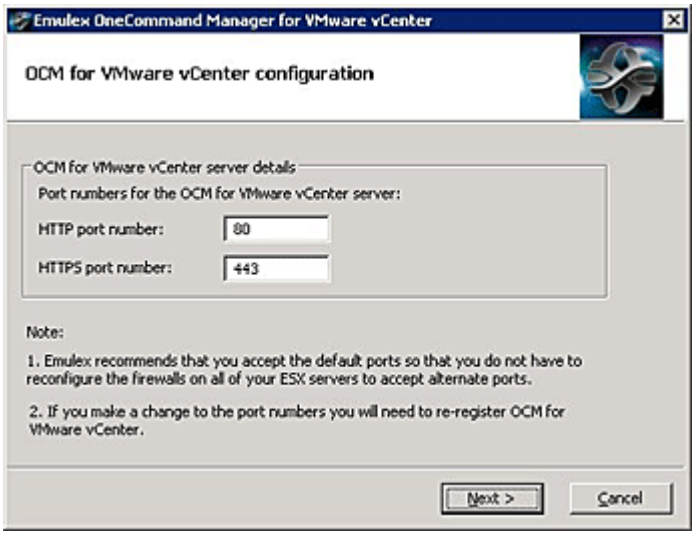
Emulex OneCommand Manager for VMware vCenter
OCM for VMware vCenter configuration
OCM for VMware vCenter server details
Port numbers for the OCM for VMware vCenter server:
HTTP port number:
80
HTTPS port number:
443
Note:
1. Emulex recommends that you accept the default ports so that you do not have to reconfigure the firewalls on all of your ESX servers to accept alternate ports.
2. If you make a change to the port numbers you will need to re-register OCM for VMware vCenter.
Next >
Cancel

Figure 2-9 Reinstallation Configuration Dialog Box

If OCM for VMware vCenter was installed earlier with port numbers other than the defaults provided, those configured ports are shown. If the port numbers are already in use, a warning appears next to the port number.

Note: The Windows firewall setting must allow incoming connections on the HTTP and HTTPS ports that you configure here.

6. Follow the on-screen instructions and complete the installation with steps 9 to 14 of "Installing OCM for VMware vCenter" on page 23.

3. Using OCM for VMware vCenter

Behavior of OCM for VMware vCenter Settings in the ESX Server

Active Directory

Refer to the vSphere manual on the VMware website for information on creating a user with required privileges and changing access permissions for a user in the Active Directory.

Privileges for OCM for VMware vCenter

Only a user with these specific privileges can read and perform active management in OCM for VMware vCenter:

- "Host.CIM.CIM Interaction" to read data through the OCM for VMware vCenter
- "Host.CIM.CIM Interaction" and "Host.Configuration.Maintenance" to perform any active management of the Emulex adapters
- "Extension.Register extension" to register OCM for VMware vCenter using the registration utility
- "Extension.Unregister extension" to unregister OCM for VMware vCenter using the registration utility

All other users including the root user of the ESX host cannot perform any actions including reading data. If a user without the required privileges attempts to perform any action in OCM for VMware vCenter, an error message is displayed.

Note: To configure user roles and assign privileges, refer to the *VMware vCenter Server Manual*.

Lockdown Mode Feature

Refer to the vSphere manual on the VMware website for information on enabling and disabling lockdown mode.

If lockdown mode is enabled for an ESX host, then only a user with administrator privileges can access the ESX host and manage adapters using OCM for VMware vCenter. All other users including the root user will not have access to the ESX host.

Accessing the vSphere Console

To access the vSphere console:

1. Log in to the VMware vSphere Client.
   a. Double-click the **VMware vSphere Client** icon.
   b. Enter the credentials and click **Login**.
2. Select a cluster or host in the vSphere console tree-view and click the **Emulex OneCommand** tab to perform active management on a cluster or a host.
3. A Security Alert is displayed, click **Yes**. The vSphere console is displayed.

vSphere Console Views

The vSphere console supports two views:

- Cluster view
- Host view

To access the cluster view:

Select a cluster in the vSphere console tree-view and select the **Emulex OneCommand** tab. The cluster view appears.

To access the host view:

Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab. The host view appears.

In cluster and host views, the OCM for VMware vCenter window consists of three major parts:

- The Emulex Device Management area.
- The Information pane corresponding to the option or element selected in the Emulex Device Management area.
- The About area shows version information about the Emulex OCM for VMware vCenter.
- Console buttons
  - Help – Click to load the complete indexed online help for OCM for VMware vCenter. You can search for information for all OCM for VMware tabs and functions.
  - Refresh – Click to refresh the information. If a host is added to the currently selected cluster, the host information is refreshed.
  - Preferences – Click to access the User Preferences window. Available in host view only. In the User Preferences window, select the Event Logging checkbox to show up/down events for FC, FCoE and iSCSI ports logged into the vSphere console. NIC port events are not logged, as VMware already does this. FC, FCoE and iSCSI port events are limited to the active vCenter client. If the same user login is used from another vCenter client, the User Preference window does not show these events.

Note: The User Preferences window logs only up and down events for the port. Other events, such as temperature, are not posted.

The difference between the two views is the Emulex Device Management area which may contain options or a tree-view. In a cluster view you can view fabric-centric or host-centric information about all the hosts in a cluster. Figure 3-1 shows the Emulex Device Management options available in a host-centric cluster view. You can perform active management simultaneously on a fabric or group of hosts belonging to a cluster.

In a host view you can only view information about a single host. Figure 3-2 shows the Emulex Device Management tree-view elements for a selected host. In the host view, in addition to selecting an element in the tree-view, you must also select a tab in the information pane to view the information for the element selected in the tree-view.

Note: A host can be managed by only one vCenter Server at a time.

Note: The OCM for VMware vCenter user interface is auto refreshed every five minutes.

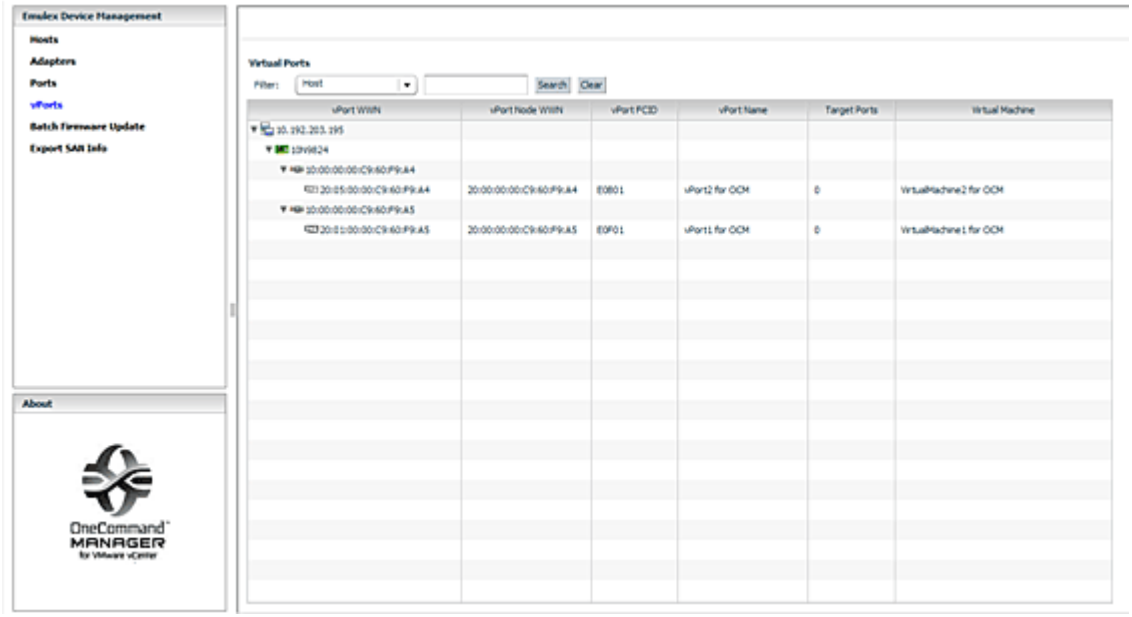

Figure 3-1 Host-Centric Cluster View

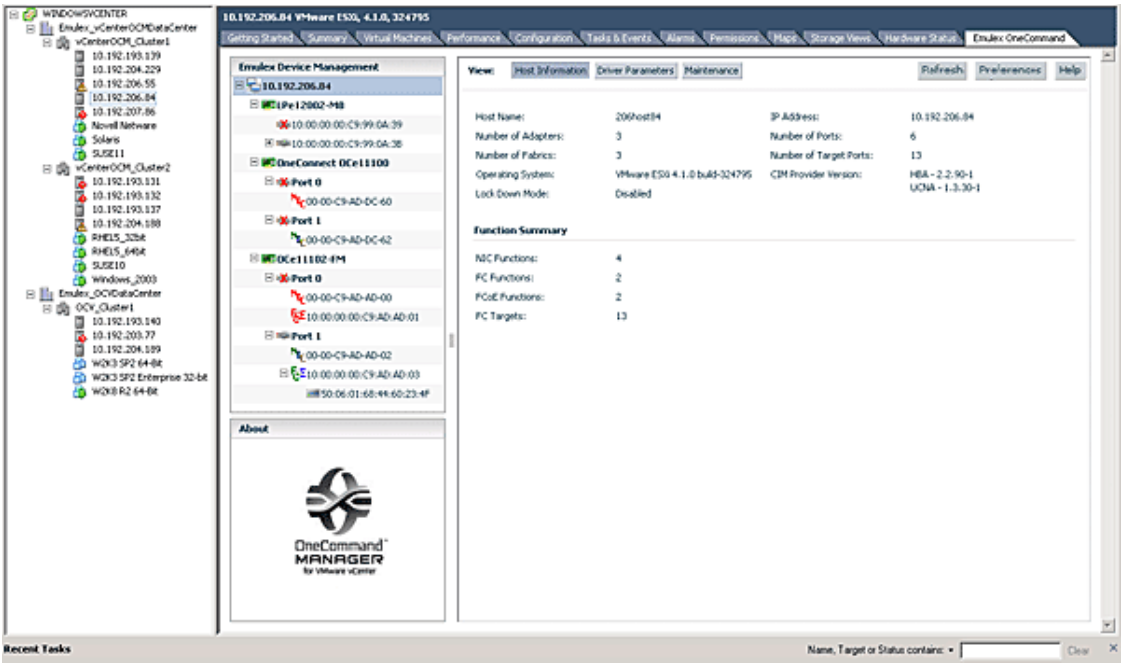

Figure 3-2 Host View

Using OCM for VMware vCenter Web Client

You can run OCM for VMware vCenter from within the vSphere Web Client.

Note: The web client for OCM for VMware vCenter was registered as part of the installation.

Enabling OCM for VMware vCenter

OCM for VMware vCenter can be enabled or disabled from the Plug-In Management section in the vSphere Web Client.

Note: You must have sufficient privileges to access the Plug-In Management section. Refer to the VMware documentation for information on configuring users and privileges.

To enable OCM for WMware vCenter in the vSphere Web Client:

1. From the navigation panel on the left-side of the vSphere Web Client Home page, click **Administration > Solutions> Plug-in Management**. The Plug-in Management page is displayed.

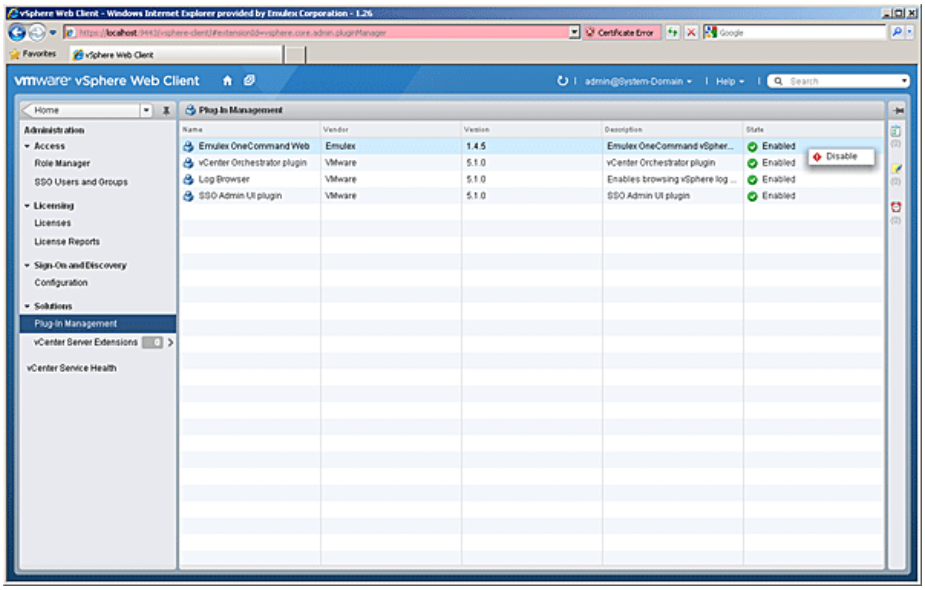

Figure 3-3 vSphere Web Client Plug-In Management Page

2. In the Plug-In Management page, select **Emulex OneCommand Web** and right-click under the State column**.** A context menu opens.
3. Select **Enable** to enable OCM for VMware vCenter or select **Disable** to disable OCM for VMware vCenter**.**

Launching OCM for VMware vCenter Web Client

Note: To increase the size of the OCM for VMware screen, the Recent Tasks panel on the right can be unpinned and collapsed.

OCM for vCenter is available at the host level and the cluster level in the vSphere inventory list.

Once you are logged into the vSphere client, the OCM for VMware vCenter is under the Classic Solutions tab for a particular host or cluster that you select in the vSphere client. When the Classic Solutions tab is loaded, the functionality and features available are the same as those for the OCM for VMware vCenter available for vSphere console.

To launch the OCM for VMware vCenter Web Client:

1. Login to the vSphere Web Client. The vSphere Web Client home page is displayed.
2. Navigate to an ESX host or cluster in the Navigation pane.
3. From the Host level view, select the host you want to display.

   -or-

   From the Cluster level view, select the cluster you want to display.
4. Go to the **Classic solutions** tab to access the OCM for VMware vCenter.

Note: If OCM for VMware vCenter is the only plug-in registered on the vCenter server, the tab title “Emulex OneCommand” does not show up under the Classic Solutions tab. OCM for vCenter directly loads under the Classic Solutions tab with no title. The “Emulex OneCommand” plug-in is shown as a sub tab only if two or more plug-ins are registered.

4. Cluster View

Note: Hosts in a cluster with different provider versions support features as listed in Table 1-1, Support Provided by Emulex CIM Provider Versions, on page 16.

Viewing Host Information in a Cluster

To view host information in a cluster:

1. Select a cluster in the vSphere console tree-view. The Getting Started tab is selected by default.
2. Select the **Emulex OneCommand** tab, the Hosts information pane is displayed.

Figure 4-1 Hosts Information Pane

Hosts Information Field Definitions

- IP Address – The IP address of the host in the cluster.
- Operating System – The operating system and version installed on the host.
- Drivers – The drivers and their versions installed on the host.
- CIM Provider Version – The version of the Emulex CIM provider that is running on the ESX host.
- Adapters – The number of adapters installed in the host.
- Fabrics – The number of fabrics to which the host is connected.
- Ports – The number of discovered physical ports that can be managed by the host.
- Lock Down Mode – Specifies if lock down mode is enabled or disabled.

To navigate Hosts Information fields:

1. Use the Filter list to filter the host information. You can choose any of the available host information fields from the list, enter a wildcard for the field and click **Search**.
2. Click **Clear** to clear the search criteria.
3. Click **Refresh** to refresh the information. If a host is added to the currently selected cluster, the host information is refreshed.

Viewing Adapter Information

You can view information about all adapters belonging to the various hosts in a cluster.

To view adapter information:

1. Select a cluster in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. From the Emulex Device Management options, select **Adapters**. Adapters information is displayed.

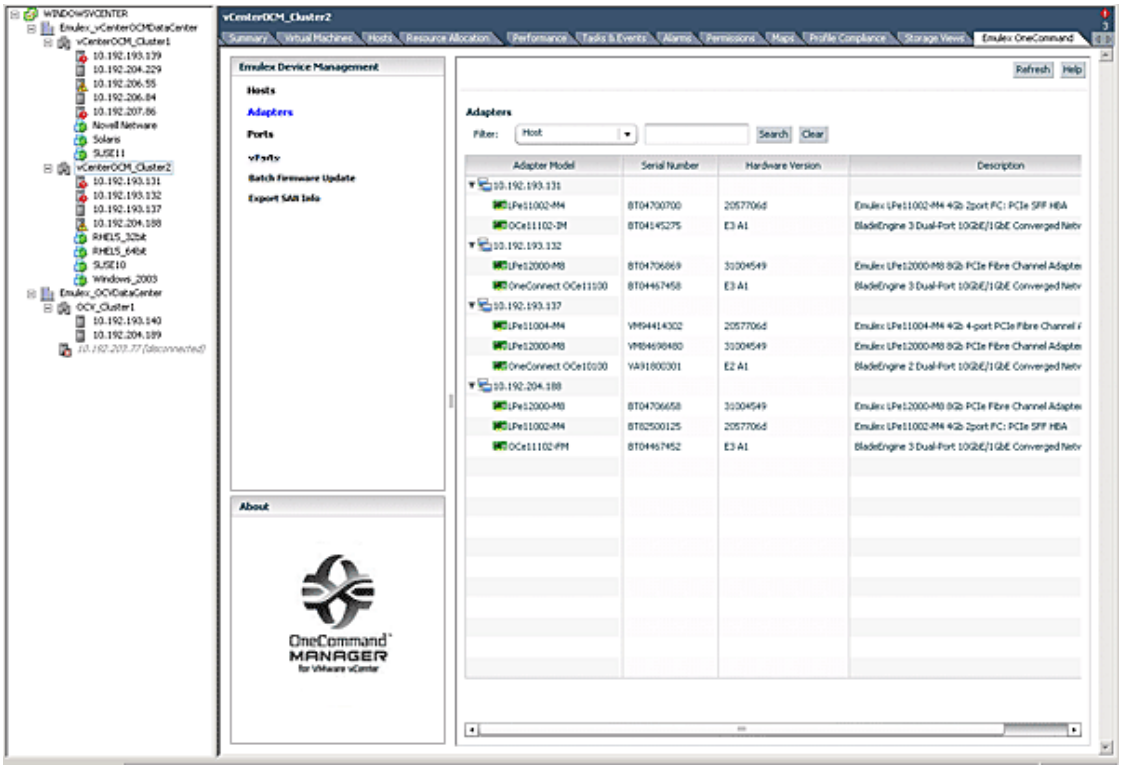

Figure 4-2 Adapters Information

Adapters Information Field Definitions

- Adapter Model – The model of the adapter.
- Serial Number – The serial number of the adapter.
- Hardware Version – For LightPulse adapters this field shows the JEDEC ID. For OneConnect adapters this field shows the board type and revision code.
- Description – The type of adapter

To navigate Adapter information page:

1. Use the Filter list to filter the adapter information. Choose any of the available adapter information fields from the list and enter a wildcard for the field and click **Search**.
2. Click **Clear** to clear the search criteria and the corresponding adapter information.
3. Click **Refresh** to refresh the information. If an adapter is added to any of the hosts, the adapter information is refreshed.

Viewing Port Information in a Cluster (Host-centric mode)

To view host information in a cluster:

1. Select a cluster in the vSphere console tree-view.
2. Select the **Emulex OneCommand** tab. Hosts information is displayed.
3. From the Emulex Device Management options, select **Ports**. The host-centric information pane is displayed.
4. Make sure the **Group by Fabric** checkbox is cleared.

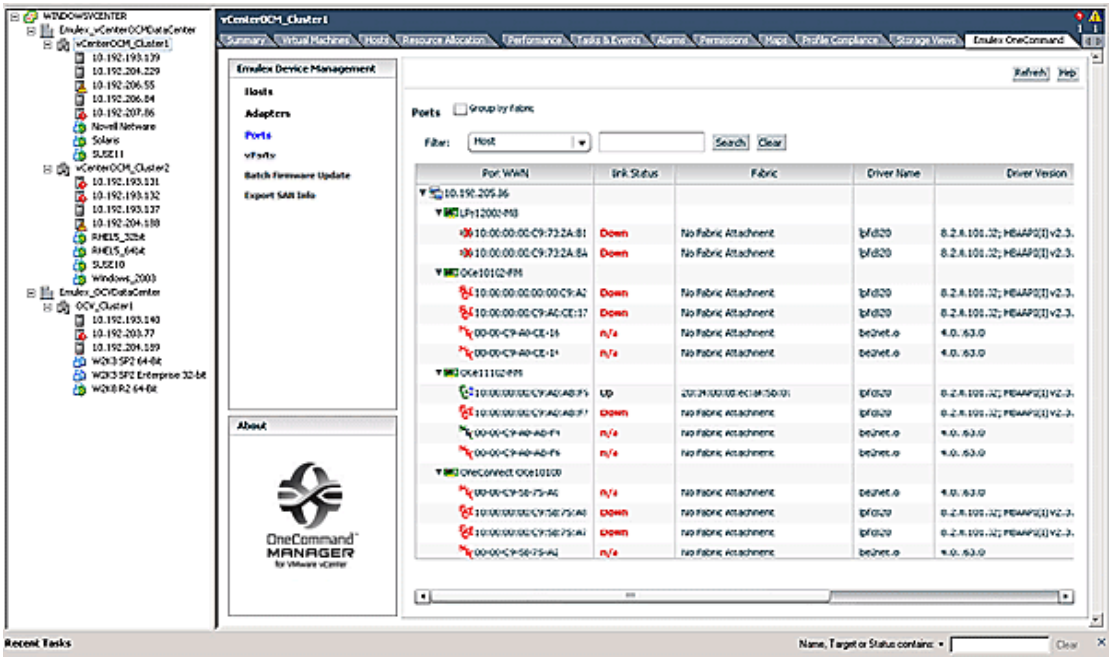

Figure 4-3 Host-Centric Cluster View

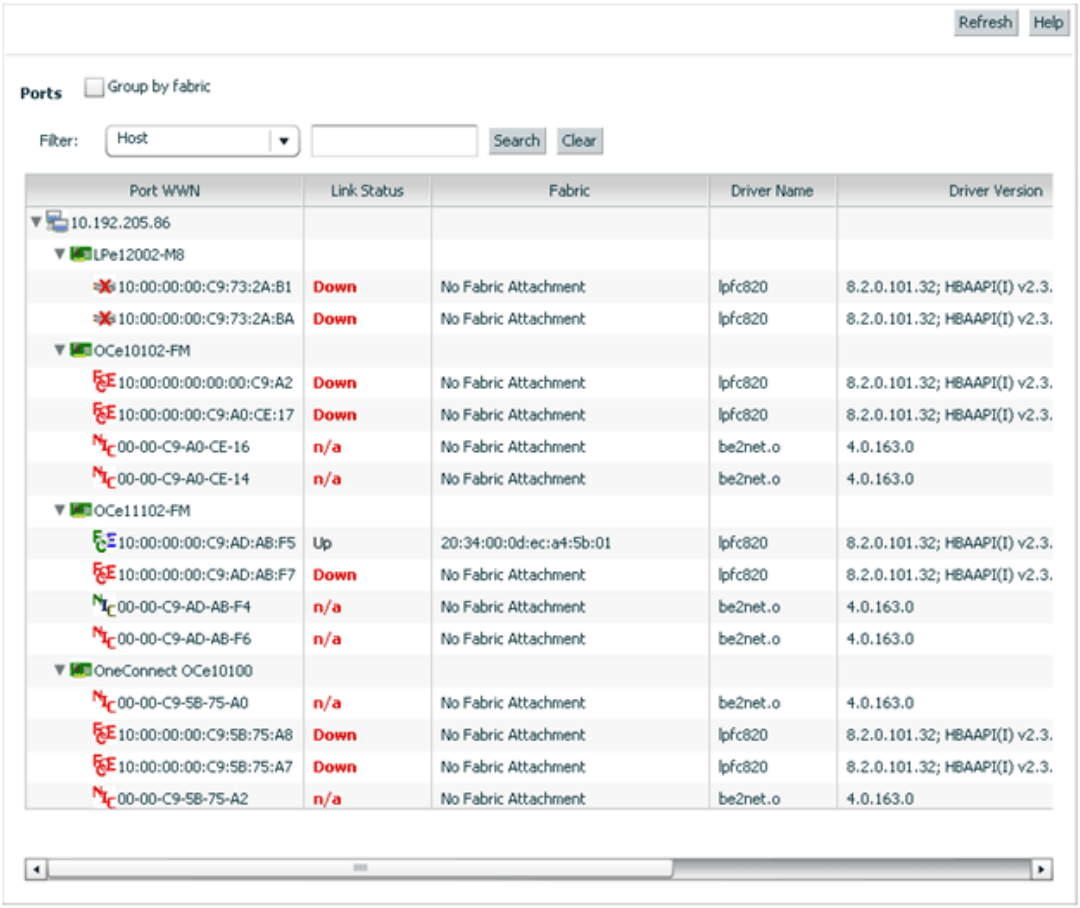

Figure 4-4 Close-Up of Host-Centric Cluster View

Host-centric Information Field Definitions

- Port WWN – The Port World Wide Name.
- Link Status – The status of the link on the selected port.
- Fabric – This is a 64-bit worldwide unique identifier assigned to the fabric.
- Driver Name – The executable file image name for the driver as it appears in the Emulex driver download package.
- Driver Version – The version of the installed driver.
- IP Address – The IP address of the host in the cluster.
- Operating System – The operating system and version installed on the host.
- Adapters – The number of adapters installed in the host.
- Active FW Version – The active firmware version.
- Flash FW Version – The firmware version that will become active once the system is rebooted.

Viewing Virtual Port Information in a Cluster (Host-centric mode)

To view virtual port information in a cluster:

1. Select a cluster in the vSphere console tree-view.
2. Select the **Emulex OneCommand** tab, port host information is displayed.
3. From the Emulex Device Management options, select **vPorts**. The Virtual Port information is displayed.

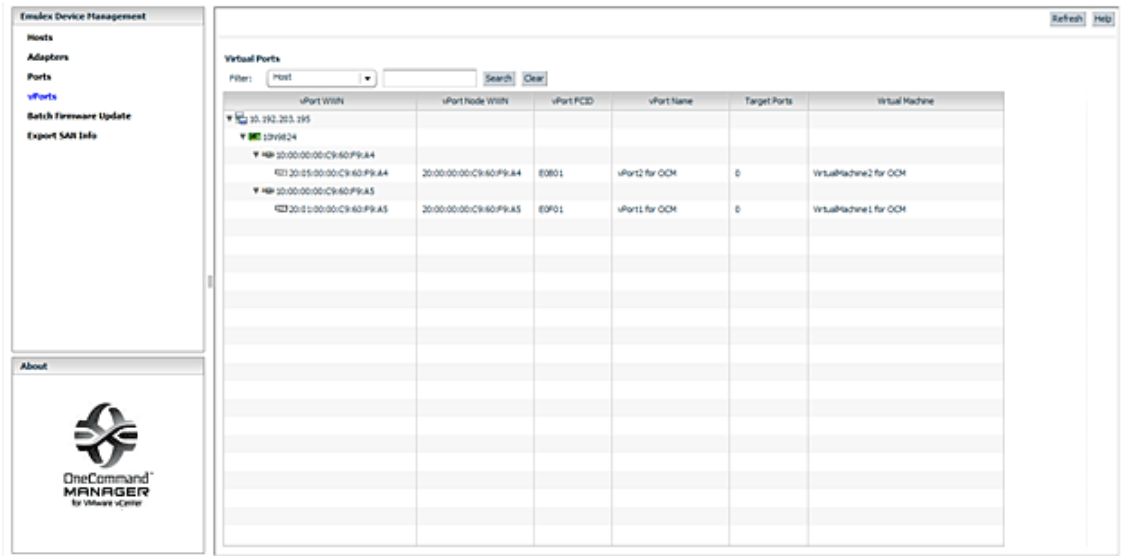

Figure 4-5 Virtual Port Cluster View

Virtual Port Information Field Definitions

- vPort WWN – The virtual port World Wide Name.
- Status – The status of the link on the selected port.
- vPort Node WWN – The virtual port node World Wide Name.
- VPort PCID – The virtual port PC ID.
- vPort Name – The virtual port name.
- Target Ports – The number of target ports.
- Virtual Machine – Virtual machine information

To filter the host information:

1. Use the Filter list to filter the host information.
2. Choose any of the available host information fields from the list and enter a wildcard for the field and click **Search**.
3. Click **Clear** to clear the search criteria.

Viewing Port Information in a Cluster (Fabric-centric mode)

To view fabric information in a cluster:

1. Select a cluster in the vSphere console tree-view.
2. Select the **Emulex OneCommand** tab, host information is displayed.
3. From the Emulex Device Management options, select **Ports**. The host-centric information pane is displayed.
4. Select the **Group by Fabric** checkbox. Fabric information is displayed.

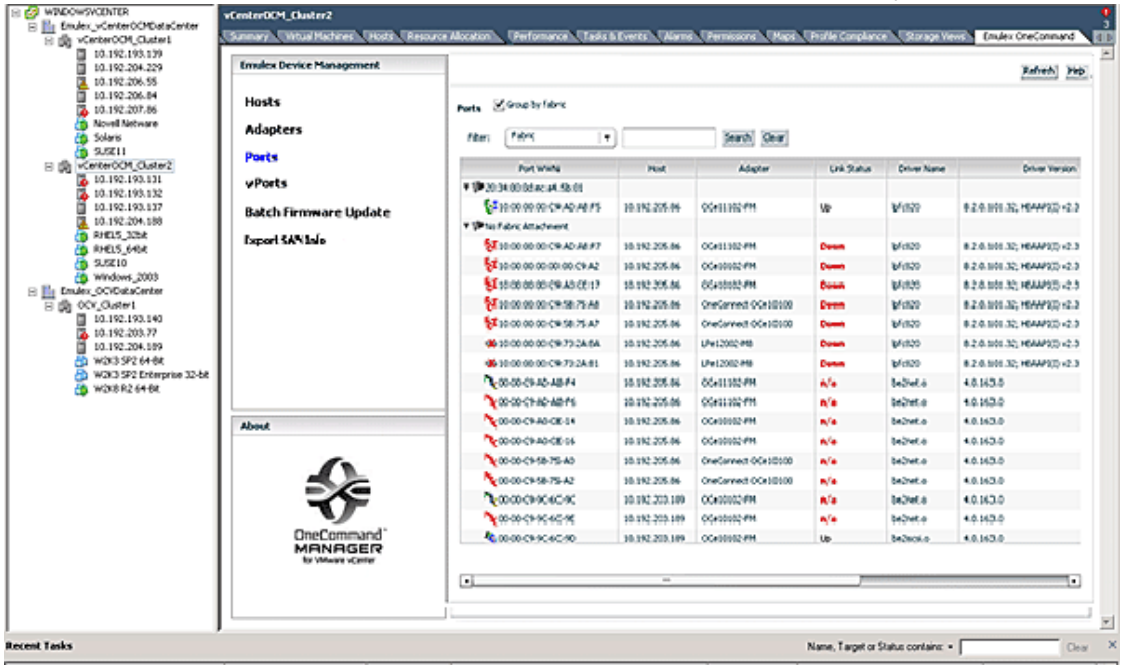

Figure 4-6 Fabric-Centric Cluster View

Note: iSCSI and NIC ports are not attached to any fabric, so they are listed under "No Fabric Attachment".

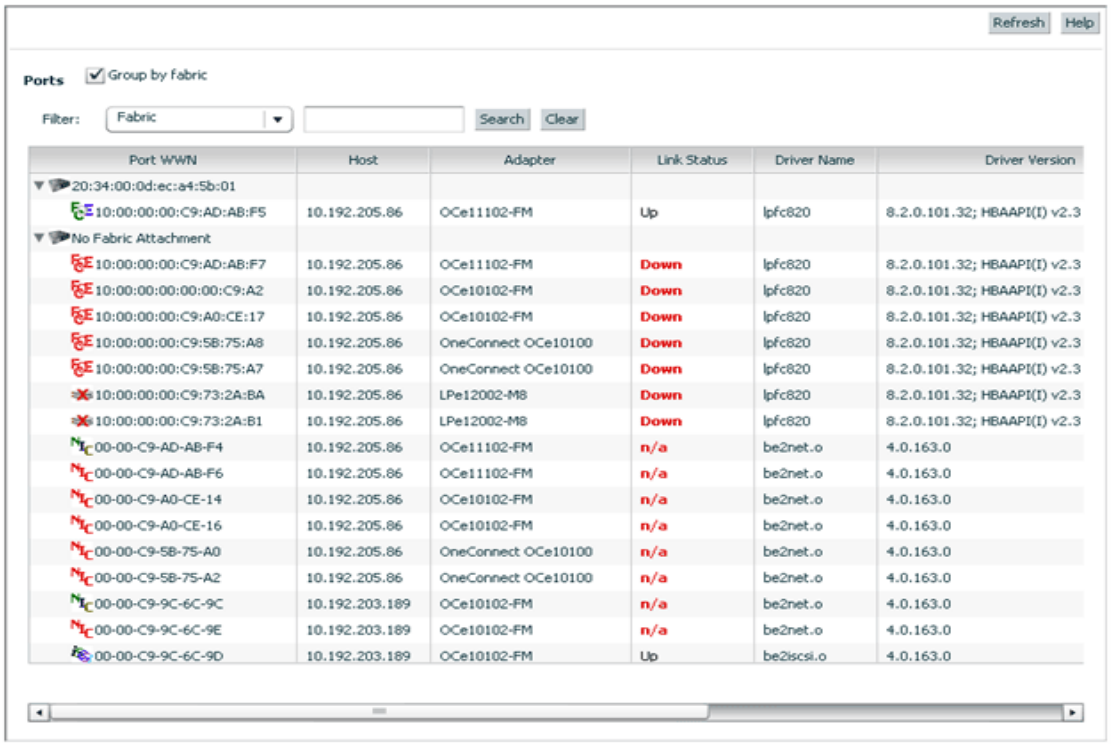

Figure 4-7 Close-up of Fabric-Centric Cluster View

Fabric-centric Information Field Definitions

- Port WWN – The port World Wide Name.
- Host – The host IP address.
- Adapter – The adapter model.
- Link Status – The status of the link on the selected port.
- Driver Name – The executable file image name for the driver as it appears in the Emulex driver download package.
- Driver Version – The version of the installed driver.
- Active FW Version – The active firmware version.
- Flash FW Version – The firmware version that will become active once the system is rebooted.

To filter the host information:

1. Use the Filter list to filter the fabric information.
2. Choose any of the available fabric information fields from the list and enter a wildcard for the field and click **Search**.
3. Click **Clear** to clear the search criteria.

Performing a Batch Firmware Update in Cluster View

Before you can perform a batch update, you must download the firmware file from the Emulex website and extract it into a directory on your local drive.

Note: On the system where OCM for VMware vCenter is installed, make sure the port numbers configured during the installation are open and dedicated to the OCM for VMware vCenter server only. No other service should be listening on this port.

To perform a batch firmware update:

1. Select a cluster in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. From the Emulex Device Management options, select **Batch Firmware Update**.

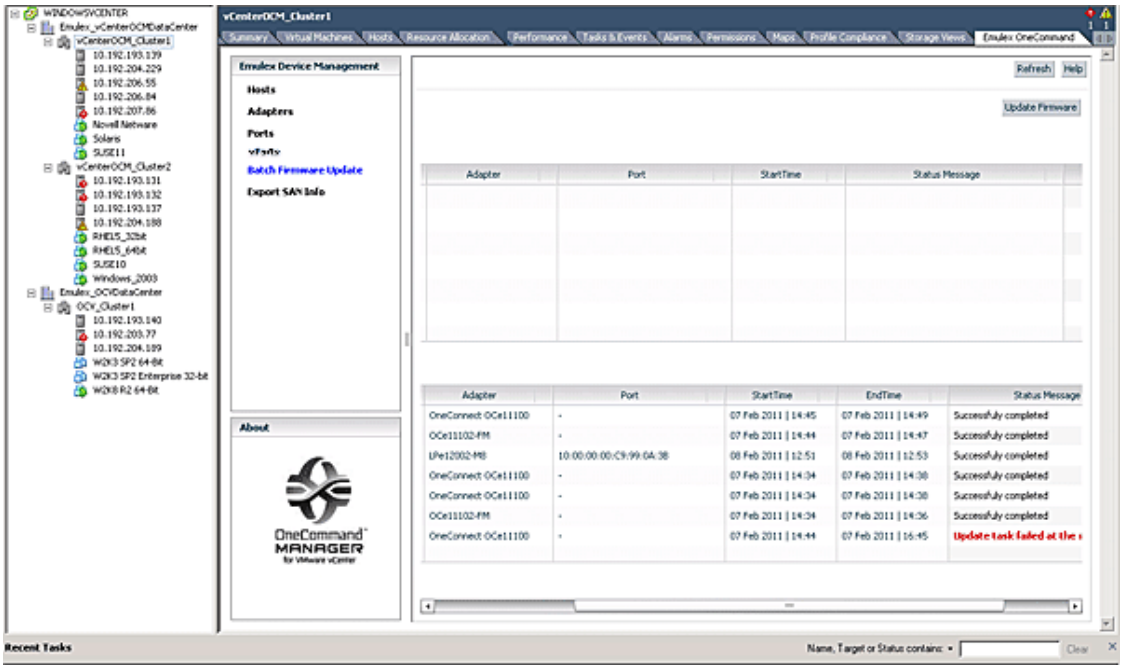

Figure 4-8 Batch Firmware Update Information Pane

3. Click **Update Firmware** to install firmware on multiple adapters in a single step. Batch firmware loading is restricted to a single firmware file and to all accessible adapters for which that file is compatible.

Updating Firmware on Multiple Adapters

To update firmware for multiple adapters:

1. Click **Update Firmware**. A Batch Firmware Download dialog box appears with blank fields.

   Note: You do not need to select a particular tree element for this operation.

2. Click **Browse** and a search dialog box appears. On the search dialog box, select the file you want to use and click **OK**. A status message appears indicating that OCM for VMware vCenter is searching for compatible adapters. Once compatible adapters are found, the following is displayed in the Batch Firmware Download dialog box:
   - The Firmware File field shows the selected image file name.
   - The Supported Models field shows a list of all adapter models that are compatible with the selected image file.
   - The set of compatible adapters appears in the dialog box's tree-view.
3. To view the compatible adapters in host-centric mode, make sure the **Group by Fabric** checkbox is cleared. Figure 4-9 shows the Batch Firmware Download dialog box in host-centric view.

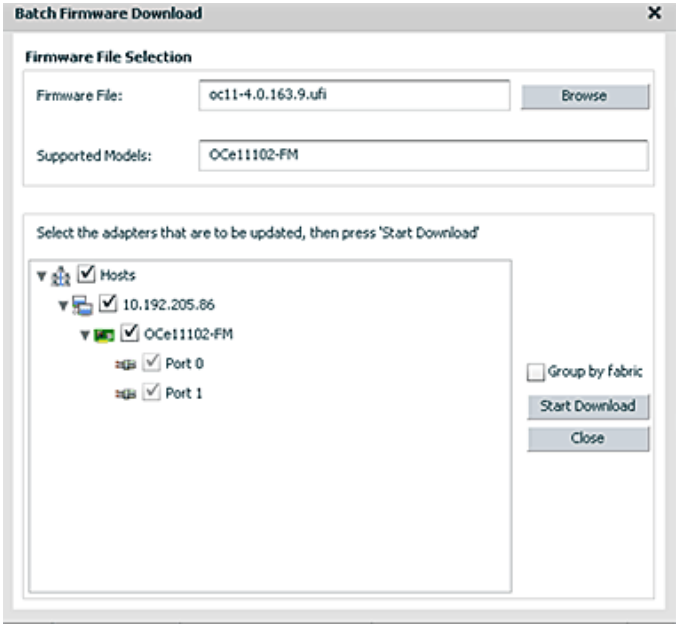

Figure 4-9 Batch Firmware Download Dialog Box, Host-Centric View

4. To view the compatible adapters in a fabric-centric mode, select the **Group by Fabric** checkbox. Figure 4-10 shows the Batch Firmware Download dialog box in fabric-centric view.

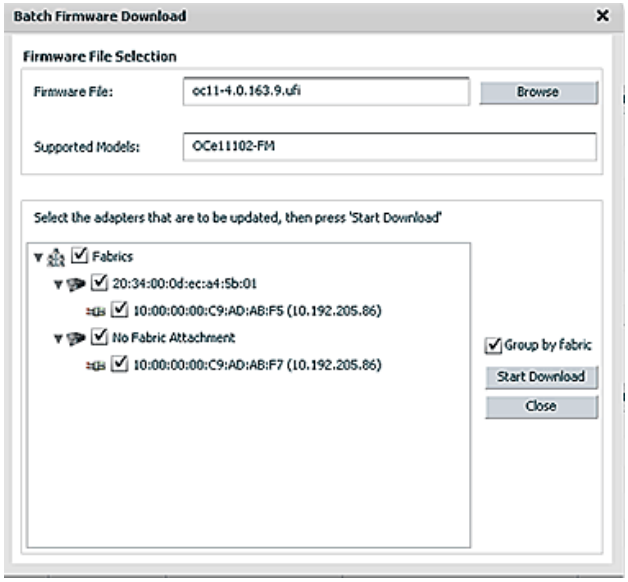

Figure 4-10 Batch Firmware Download Dialog Box, Fabric-Centric View

The tree-view shows all adapters and their corresponding hosts or fabrics for which the selected firmware file is compatible. Use the checkboxes next to the entries to select or deselect a host, fabric, adapter or port (if the adapters where the individual port can have new firmware downloaded).

Note: iSCSI and NIC ports are not attached to any fabric, they are not listed in the Batch Firmware Download dialog box.

5. Make your selections and click **Start Download**. A message prompting you to confirm the firmware update appears, click **Yes**.

When the download begins the Jobs window is displayed (Figure 4-11). A status message in the Active Job list shows the progress of the firmware download. The ports on which the firmware is being downloaded have the status “Job is in progress”, the other ports have “Waiting in queue to start”. When download is completed, the entry moves to the Completed Jobs window. The status message field in the Completed Jobs window shows the status of the completed job.

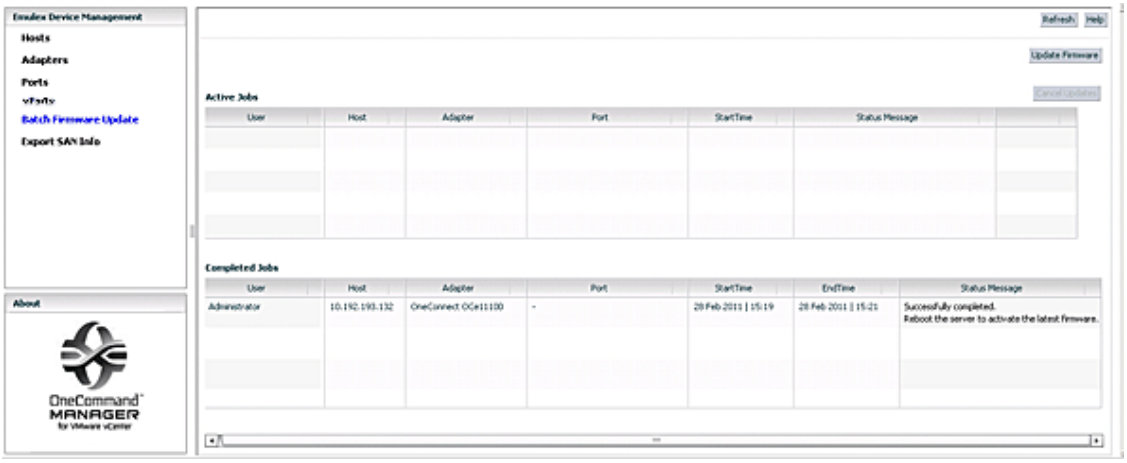

Figure 4-11 Batch Firmware Update Jobs Window

Batch Firmware Update Jobs Window Field Definitions

Active Jobs Column Definitions

- User – The user who triggered the firmware update.
- Host – The IP address of the host to which the adapter/port belongs.
- Adapter – The model of the adapter.
- Port – The Port WWN for a LightPulse adapter. This field is blank if it is a OneConnect adapter.
- Start Time – The time the job is submitted.
- Status Message – The status of the job.

Completed Jobs Column Definitions

- User – The user who triggered the firmware update.
- Host – The IP address of the host to which the adapter/port belongs.
- Adapter – The model of the adapter.
- Port – The port WWN for a LightPulse adapter. This field is blank if it is a OneConnect adapter.
- Start Time – The time the job is submitted.
- End Time – The time the job is completed.
- Status Message – The status of the job.

Jobs Window Buttons

- Update Firmware – Click to update firmware on a different adapter in the same cluster.
- Cancel Updates – Click to cancel the jobs with “Waiting in queue to start” status.

Considerations for Firmware Updates

- If you start a firmware update and log out from the vSphere console before the firmware update is completed, all pending jobs fail.
- The firmware update progresses in the background until all the jobs are completed. During this period you can still browse through the other tabs.
- The submitted firmware update job can also be tracked in the VMware tasks window.
- Multiple firmware update jobs can be submitted for different adapters and ports on the same or different ESX hosts simultaneously to OneCommand Manager for VMware. However, only a single job is processed on a given ESX host. The remaining jobs on that host will be queued and processed sequentially.

Exporting SAN Information in the Cluster View

Note: Creating a SAN report can take several minutes for a large SAN.

To export SAN information:

1. Select a cluster in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. From the Emulex Device Management tree, select **Export San Info**. The export SAN Info pane is displayed.

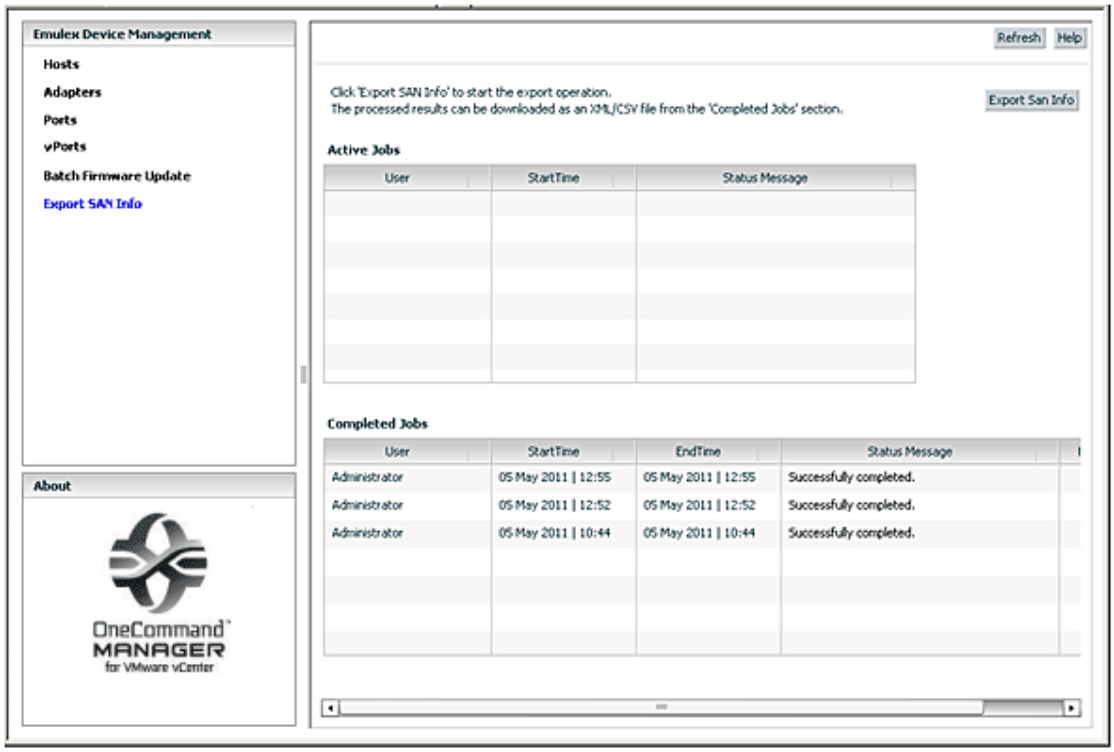

Figure 4-12 Export SAN Info

Export SAN Info Window Field Definitions

Active Jobs Column Definitions

- User – The user who triggered the firmware update.
- Start Time – The time the job is submitted.
- Status Message – The status of the job.

Completed Jobs Column Definitions

- User – The user who triggered the firmware update.
- Start Time – The time the job is submitted.
- End Time – The time the job is completed.
- Status Message – The status of the job.
- Download – Click **XML** or **CSV** to download the file with SAN information in the specified format.

Jobs Window Buttons

Export SAN Info – Click to update firmware on a different adapter in the same cluster.

3. Click **Export San Info**. The Export SAN Info dialog box is displayed.

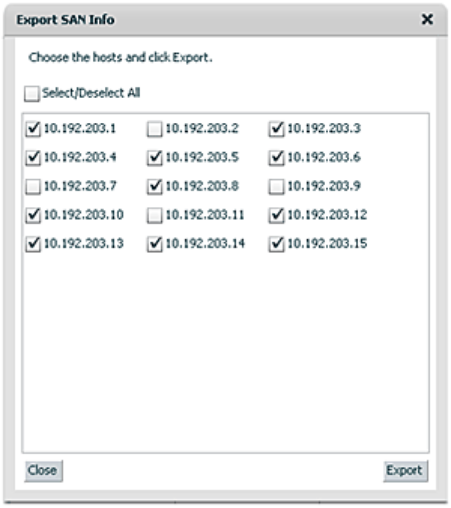

Figure 4-13 Export SAN Info Dialog Box

4. Select host or hosts to export.

   Optionally, select the **Select/Deselect All** checkbox to select all hosts. Clear the **Select/Deselect All** checkbox to clear all host checkboxes.

5. Click **Export**.

The Export SAN Info Jobs window is displayed. The status is displayed in the Active Jobs list.

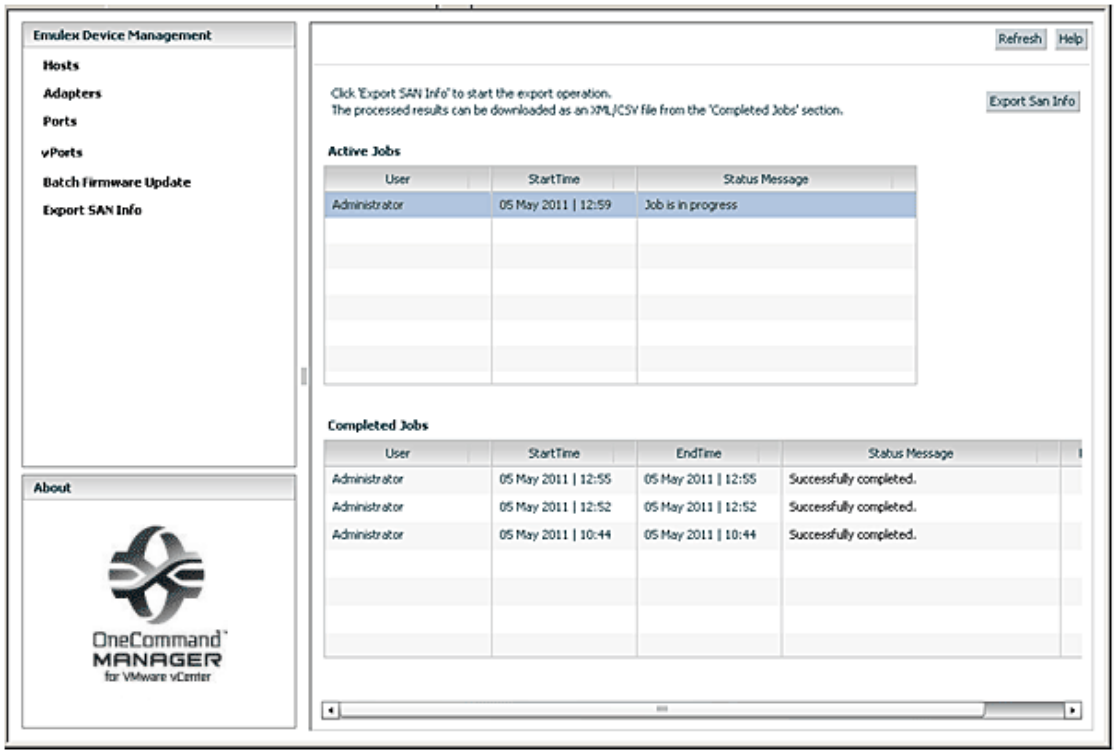

Figure 4-14 Export SAN Info Jobs Window, Active Jobs List

When the export job is completed, the entry is displayed in the Completed Jobs list with a "Successfully completed" status.

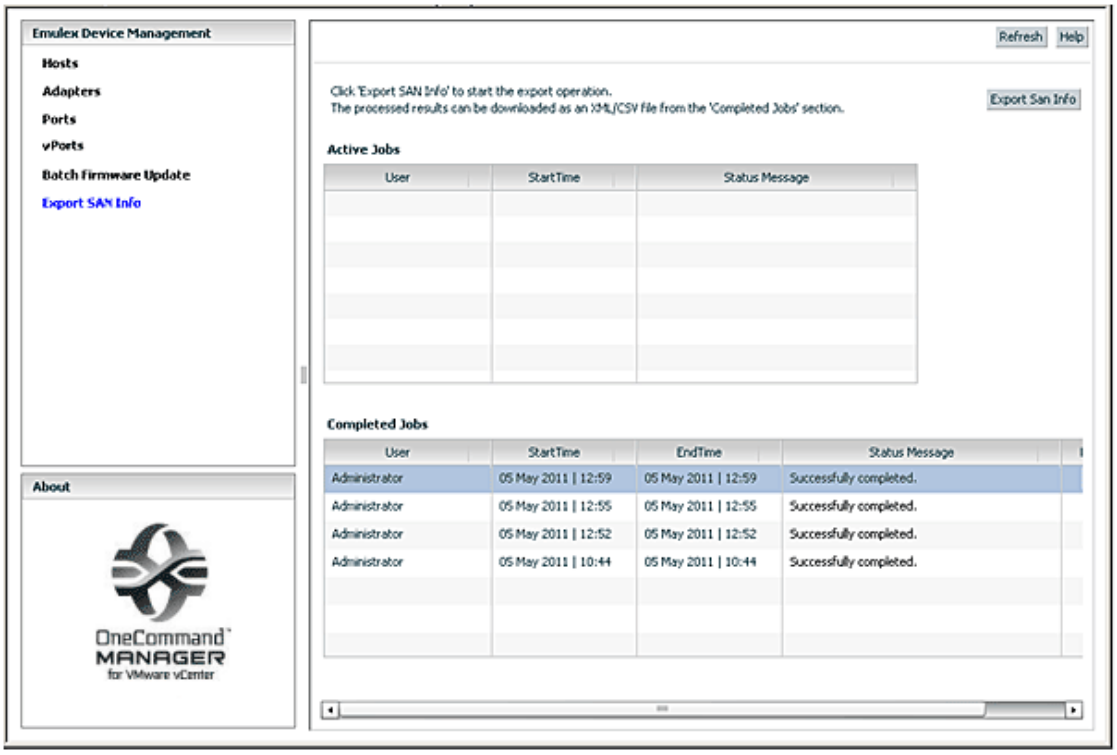

Figure 4-15 Export SAN Info Jobs Window, Completed Jobs List

Capturing SAN Information in XML or CSV Format

1. Click the row that represents the information you want to capture.
2. Scroll to the right until the Download column appears.
3. In the Download column, click **XML** or **CSV** to capture the information.

Considerations When Exporting SAN Information in a Cluster View

- At any time only ten completed jobs are available to be exported. If more than ten jobs are completed, the first completed jobs are not available for download.
- If you start Export SAN Info and log out from the vSphere console before the export is completed, all pending jobs fail.
- The exporting of SAN information progresses in the background until all the jobs are completed. During this period you can still browse through the other tabs.
- The firmware update job submitted can also be tracked in the VMware tasks window.

5. Host View

Viewing Information for a Single Host

To view host information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab. The Host Information tab is selected by default and the information of the selected host appears.

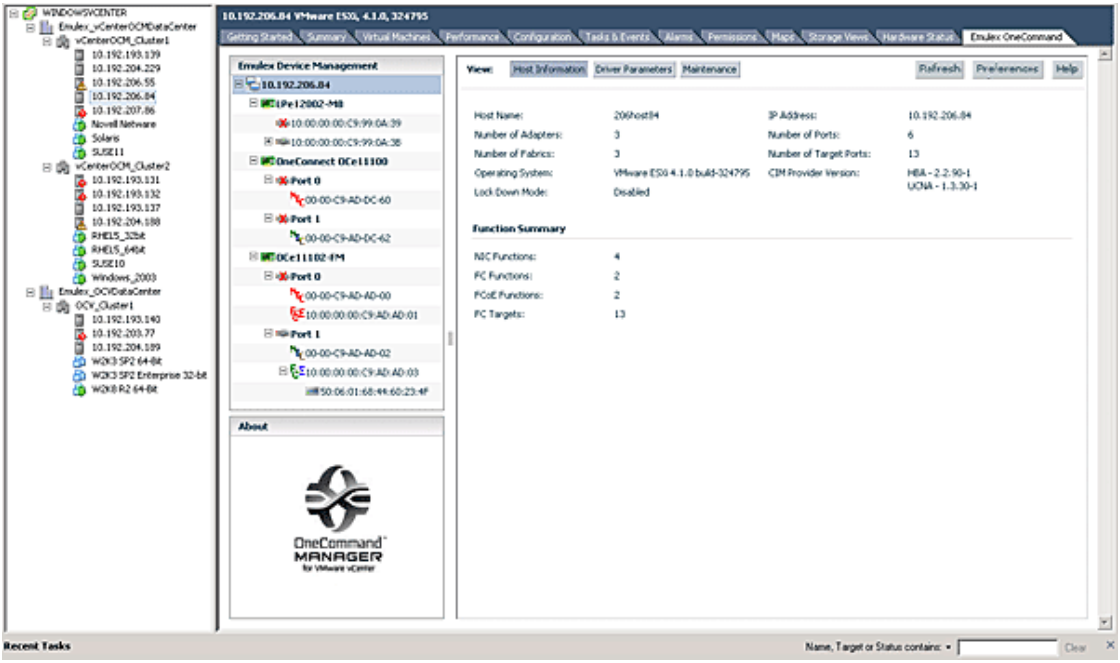

Figure 5-1 Host Information Pane

Host Information Field Definitions

- Host Name – The host identifier.
- Number of Adapters – The number of adapters installed in the host.
- Number of Fabrics – The number of fabrics to which the host is connected.
- Operating System – The operating system and version installed on the selected host.
- Lock Down Mode – Indicates whether lockdown mode is enabled or disabled.
- IP Address – The IP address of the host.
- Number of Ports – The number of discovered physical ports that can be managed by this host.
- Number of Target Ports – The number of targets discovered across the ports.
- CIM Provider Versions – The version of the Emulex CIM providers that are running on the ESX host.

Function Summary Area

- NIC Functions – The number of NIC functions running on the discovered adapters on this host.
- FC Functions – The number of FC functions running on the discovered adapters on this host.
- FCoE Functions – The number of FCoE functions running on the discovered adapters on this host.
- FC Targets – The number of FC targets discovered on the FC/FCoE functions on this host.

Viewing Driver Parameters of All Adapters in a Host

The host Driver Parameters tab enables you to view and edit the adapter driver parameter settings for a specific host. The host driver parameters are global values and apply to all adapters in that host unless they are overridden by parameters assigned to a specific adapter using the port Driver Parameters tab. For each parameter, the information pane shows the current value, the range of acceptable values, the default value, and whether the parameter is dynamic. A dynamic parameter allows the change to take effect without resetting the adapter or rebooting the system.

For information on changing parameters for the host, refer to "Setting Driver Parameters for All Adapters in a Host" on page 55.

Note: If there are no discovered FC or FCoE adapters, the driver parameters table is empty. This occurs because there are no adapters to which the host driver parameters apply.

To view driver parameters for all adapters in a host:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. Select the **Driver Parameters** tab.

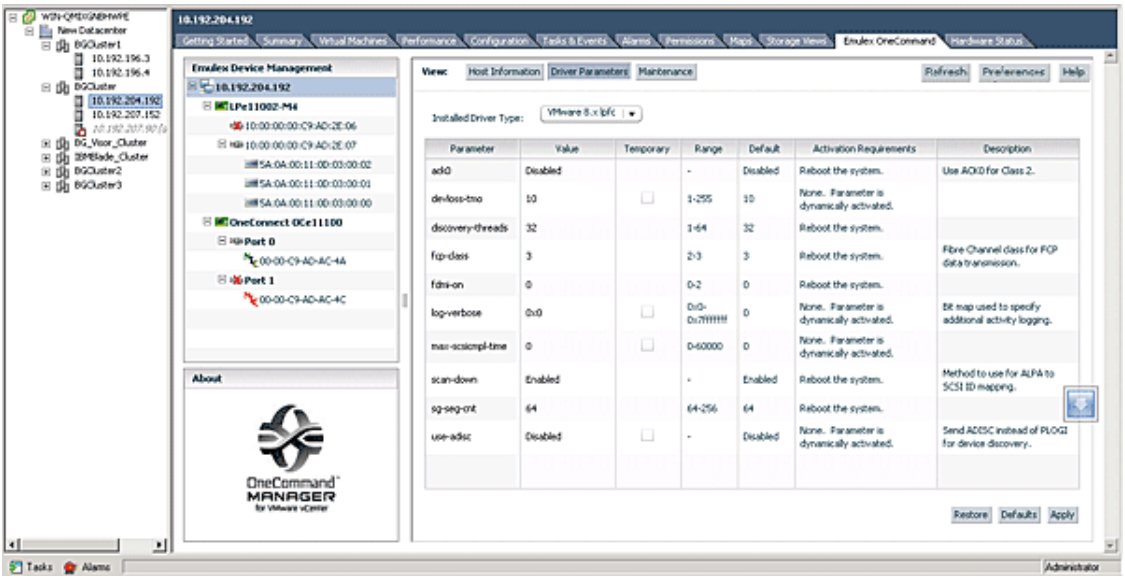

Figure 5-2 Host Driver Parameters Pane

Host Driver Parameters Tab Field Definitions

- Installed Driver Type – The current driver installed on this host.
- Driver Parameter table – A list of adapter driver parameters and their current values.

  Driver parameter specific information is displayed in this area. This includes value, range, default, activation requirements and description.

  - Parameter – The name of the driver parameter.
  - Value – The value of the driver parameter.
  - Temporary – Indicates if the value can be set temporarily at port level.
  - Range – The range of acceptable values for the driver parameter.
  - Default – The default value of the parameter.
  - Activation Requirements – The steps required to activate the changed value of the driver parameter.
  - Description – The description of the driver parameter.

Host Driver Parameter Tab Buttons

- Globals – Click to set an adapter parameter value to the corresponding host parameter value. All parameter values will be the same as the global, or host, values.
- Restore – Click if you changed parameters, but did not click Apply and you want to restore the parameters to their last saved values.
- Defaults – Click to reset all parameter values to their default (factory) values.

- Apply – Click to apply the global values.
- Save – Click to save a desired adapter parameter configuration.
- Refresh – Click to refresh the information.

Setting Driver Parameters for All Adapters in a Host

To change the driver parameters for all adapters in a host:

1. From the vSphere console tree-view, select the host whose adapter driver parameters you want to change. Select the **Emulex OneCommand** tab.
2. Select the host **Driver Parameters** tab. If there are adapters with different driver types installed, the Installed Driver Types menu shows a list of all driver types and driver versions that are installed. Select the driver whose parameters you want to change. This menu does not appear if all the adapters are using the same driver.
3. In the driver parameter table, click the **Value** field of a parameter that you want to change. The range for the value is displayed. Enter a value in decimal or hexadecimal format, depending on how the current value is presented. If the value is in hexadecimal format, it is prefaced by "0x" (for example -"0x2d").
4. Parameters that can be changed temporarily can only be changed from the corresponding port. Such parameters are represented with a check-box next to it.
5. Click **Apply**.

Viewing Firmware Information of All Adapters in a Host

The host Maintenance tab enables you to view and update firmware on multiple adapters in a specific host.

To view firmware information of all adapters in a host:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. Select the **Maintenance** tab.

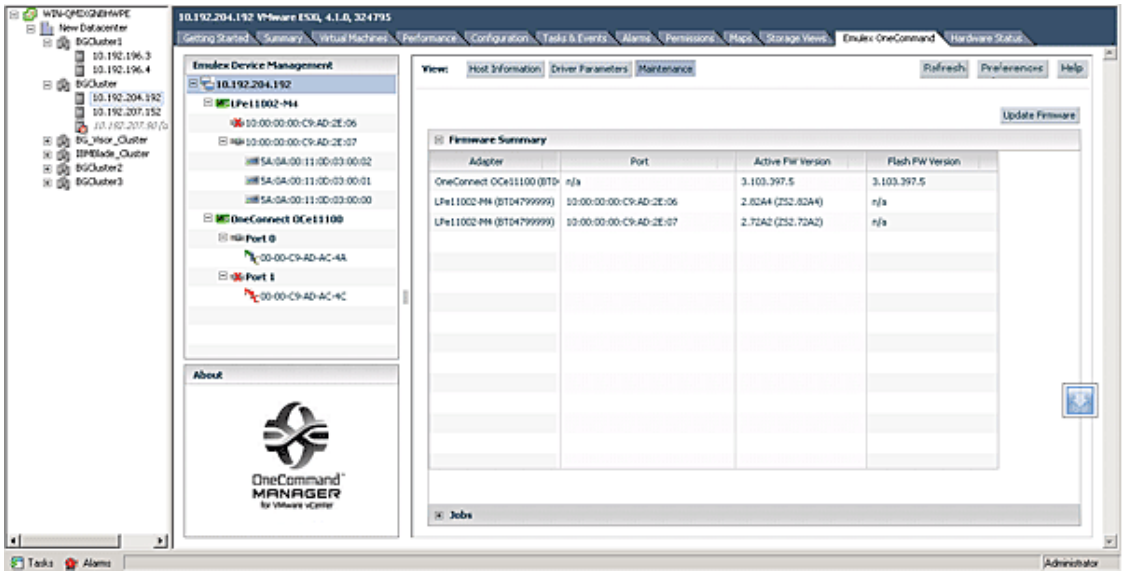

Figure 5-3 Host Maintenance Tab

Host Maintenance Tab Field Definitions

- Adapter – The model of the adapter.
- Port – The port WWN.
- Active FW Version – The current firmware on the adapter.
- Flash FW Version – The flashed firmware on the adapter. Shows n/a for FC ports.

Host Maintenance Tab Buttons

- Update Firmware – Click to update firmware on the selected adapter.

Updating Firmware on Adapters in a Host

On the system where OCM for VMware vCenter is installed, make sure the port numbers configured during the installation are open and dedicated to the OCM for VMware vCenter server only. No other service should be listening on this port.

Before you can perform a batch update, the firmware file must be downloaded from the Emulex website and extracted to a directory on your local drive.

To update firmware for compatible adapters:

1. Click **Update Firmware**.

   Note: You do not need to select a particular tree element for this operation.

The Batch Firmware Download dialog box appears.

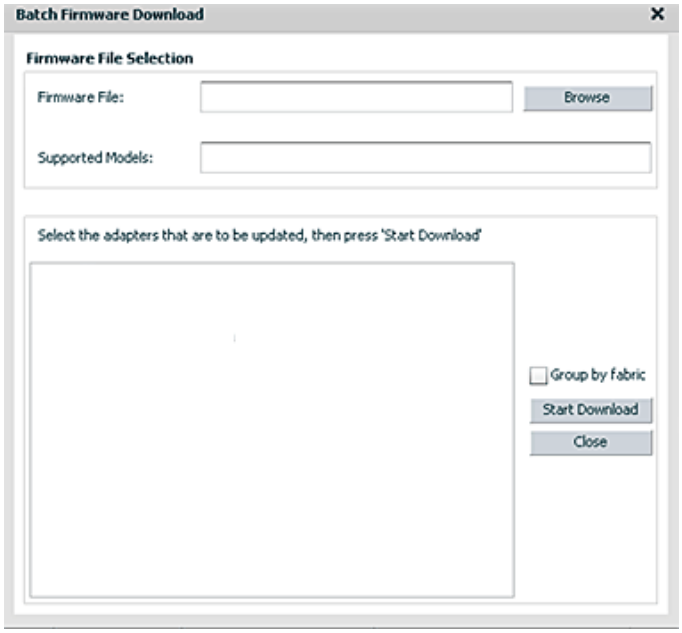

Figure 5-4 Empty Batch Firmware Download Dialog Box

2. Click **Browse**. The Firmware File Selection dialog box appears. Select the file you want to use and click **OK**. A status message appears indicating that OCM for VMware vCenter is searching for compatible adapters.

   Once compatible adapters are found, the Firmware File field of the Batch Firmware Download dialog box shows the selected image file name. The Supported Models field shows a list of all adapter models that are compatible with the selected image file. The set of compatible adapters shows in the dialog box's tree-view.

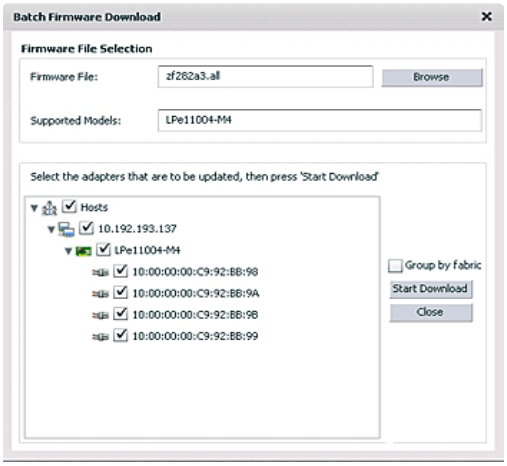

Figure 5-5 Populated Batch Firmware Download Dialog Box

The tree-view shows all adapters and their corresponding hosts for which the selected firmware file is compatible. Use the checkboxes next to the host and adapter entries to select or deselect an entry. Checking an adapter selects or removes that adapter; checking a host removes or selects all eligible adapters for that host.

To view the compatible adapters in a fabric-centric mode, select the **Group by Fabric** checkbox.

For adapters where each individual port can have new firmware installed, you can select the ports on the adapter to which you want to download firmware.

3. Make your selections and click **Start Download**. A message prompting you to confirm the firmware update appears, click **Yes**.

   When the update begins, a status message in the Active Job window shows the progress as either "Job is in progress" or "Waiting in queue to start". The ports on which the firmware is being downloaded have the status "Job is in progress" the others have "Waiting in queue to start". You can select the checkbox to cancel the jobs with status "Waiting in queue to start". When download is completed, the entry moves to the Completed Jobs window. The status message field in the Completed Jobs window shows the status of the completed job.

   Note: If you start firmware update and log out from the vSphere console before the firmware update is completed, all pending jobs fail.

   Note: The firmware update progresses in the background until all the jobs are completed. During this period you can still browse through the other tabs.

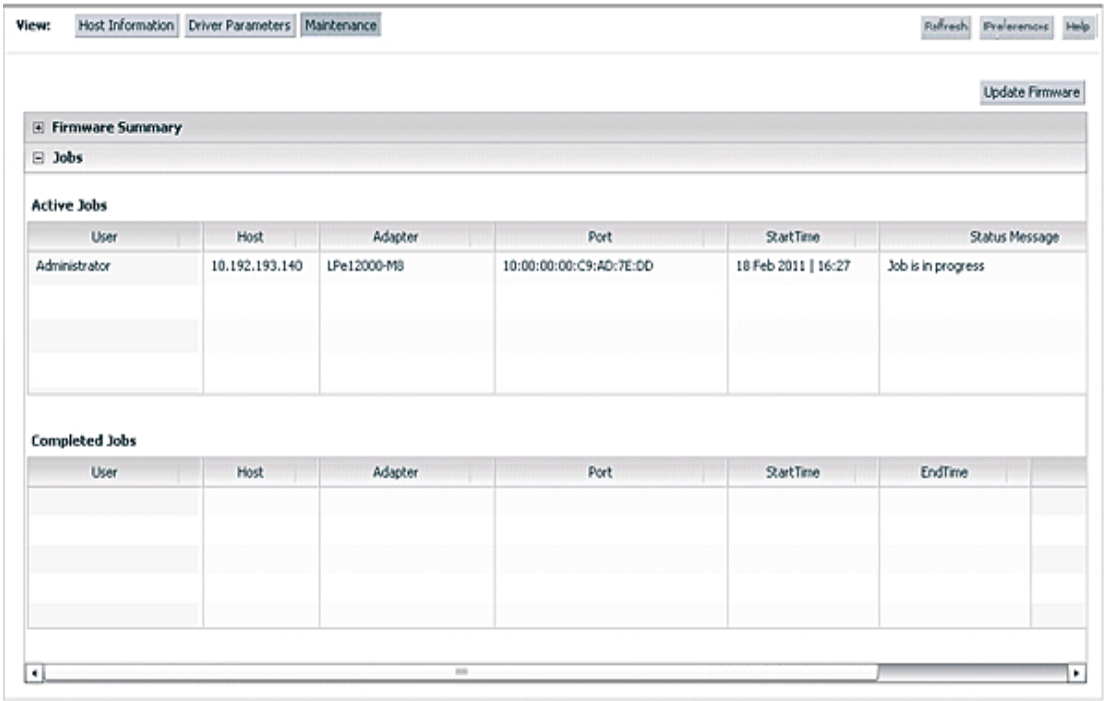

Figure 5-6 Jobs Window

Jobs Window Field Definitions

Active Jobs Area

- User – The user who triggered the firmware update.
- Host – The IP address of the host to which the adapter/port belongs.
- Adapter – The model of the adapter.
- Port – The Port World Wide Name of the adapter if the adapter is a LightPulse adapter. This field is blank if a OneConnect adapter.
- Start Time – The time that the job is submitted.
- Status Message – The status of the job.

Completed Jobs Area

- User – The user who triggered the firmware update.
- Host – The IP address of the host to which the adapter/port belongs.
- Adapter – The model of the adapter.
- Port – The port World Wide Name of the adapter if the adapter is a LightPulse adapter. This field is blank if a OneConnect adapter.
- Start Time – The time that the job is submitted.
- End Time – The time that the job is completed.
- Status Message – The status of the job.

6. Adapter View

The adapter information that is displayed depends upon the type of adapter you select; LightPulse (FC) or OneConnect.

Viewing LightPulse (FC) Adapter Information

When you select an FC adapter from the Emulex Device Management tree-view, the Adapter Information pane contains general attributes associated with the selected FC adapter.

To view information for an FC adapter:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select an FC adapter. The adapter Information tab is displayed.

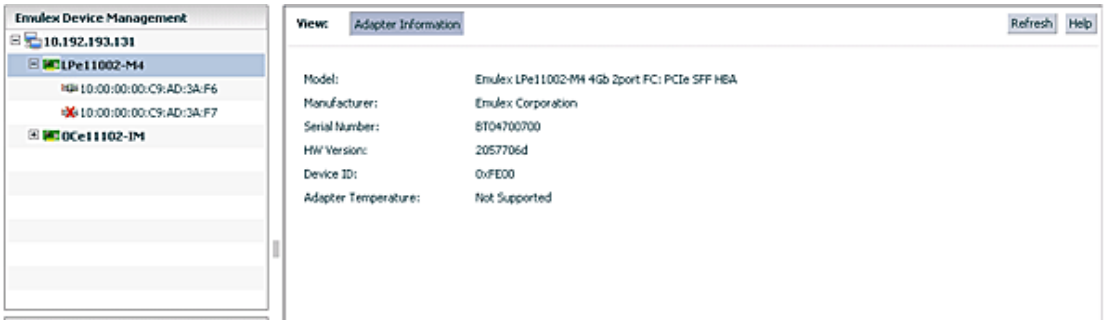

Figure 6-1 FC Adapter Information Tab

FC Adapter Information Field Definitions

- Model – The complete model name of the adapter.
- Manufacturer – The manufacturer of the adapter.
- Serial Number – The manufacturer's serial number for the selected adapter.
- HW Version – For LightPulse adapters, this field shows the JEDEC ID.
- Device ID – The default device ID for the selected adapter.
- Adapter Temperature – If the adapter's temperature is not available, "Not Supported" is displayed. If supported by the adapter, this field shows the adapter's temperature and one of the following temperature-related status messages:
  - Normal – The adapter's temperature is within normal operational range.
  - Exceeded operational range – Critical: The adapter's temperature is beyond normal operational range. If the temperature continues to increase, the adapter shuts down. You must determine the cause of the temperature problem and fix it immediately. Check for system cooling issues. Common causes of system cooling issues include clogged air filters, inoperable fans and air conditioning problems that cause high ambient air temperatures.

- Exceeded operational range – Adapter stopped: The temperature has reached critical limit, forcing the adapter to shut down. You must determine the cause of the temperature problem and fix it before resuming operation. Check for system cooling issues. Common causes of system cooling issues include clogged air filters, inoperable fans and air conditioning problems that cause high ambient air temperatures.

  After the system overheating issue is resolved and the adapter has cooled down, reboot the system or, if the system supports hot swapping, cycle the power of the adapter slot.

Viewing OneConnect Adapter Information

The Adapter Information tab contains general attributes associated for the selected OneConnect adapter. You can also use this tab to view and enable licenses. See "Port View" on page 64 for more information.

To view information for a OneConnect adapter:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select a OneConnect adapter. The Adapter Information tab is displayed.

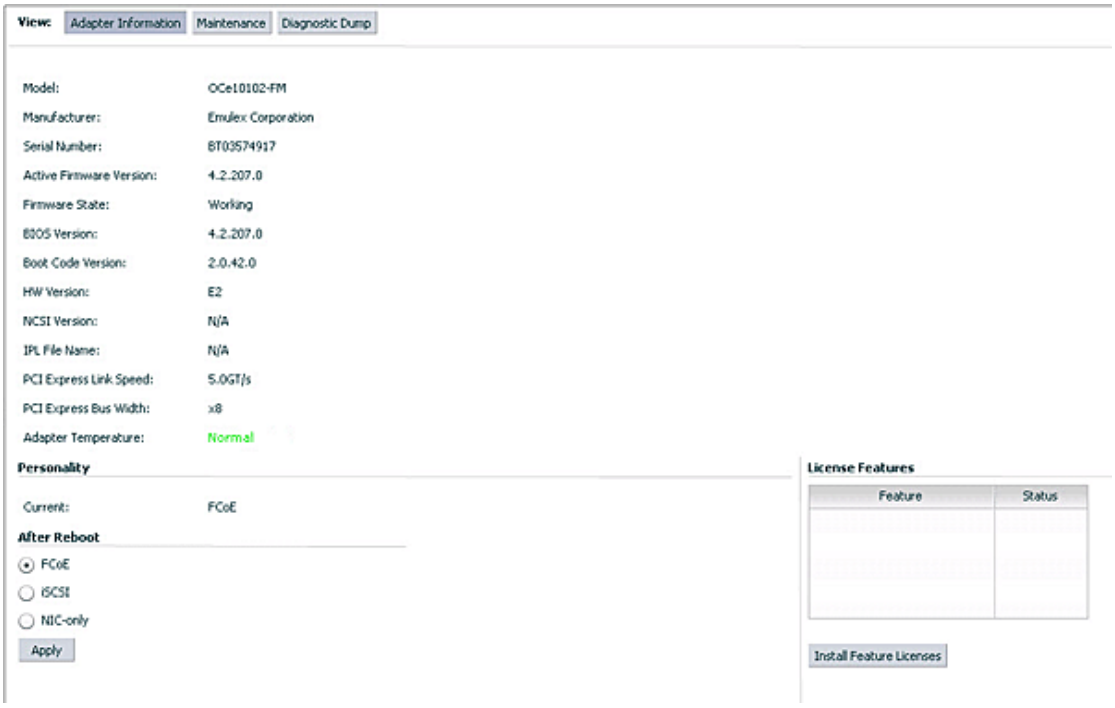

Figure 6-2 OneConnect Adapter Information Tab

OneConnect Adapter Tab Field Definitions

- Model – The model of the selected adapter.
- Manufacturer – The manufacturer of the adapter.
- Serial Number – The serial number of the selected adapter.
- Active Firmware Version – The firmware version running on the selected adapter.
- Firmware State – The condition of the firmware.
- BIOS Version – The version of the BIOS in use.
- Boot Code Version – The version of the boot code in use.
- HW Version – The hardware version of the selected adapter.
- NCSI Version – The Network Controller Sideband Interface version.
- IPL File Name – The name of the IPL (Initial Program Load) file currently loaded.
- PCI Express Link Speed – The speed of the PCI bus in which the adapter running.
- PCI Express Bus Width – The number of lanes for the slot in which the adapter is running.
- Adapter Temperature – If the adapter's temperature is not available, "Not Supported" is displayed. If supported by the adapter, this field displays the adapter's temperature and one of the following temperature-related status messages:
  - Normal: The adapter's temperature is within normal operational range.
  - Warning: The adapter's temperature is beyond normal operational range. If the temperature continues to increase, the adapter shuts down. You must determine the cause of the temperature problem and fix it immediately. Check for system cooling issues. Common causes of system cooling issues include clogged air filters, inoperable fans and air conditioning problems that cause high ambient air temperatures.
  - Exceeds operational range – Adapter stopped: The temperature has reached critical limit, forcing the adapter to shut down. You must determine the cause of the temperature problem and fix it before resuming operation. Check for system cooling issues. Common causes of system cooling issues include clogged air filters, inoperable fans and air conditioning problems that cause high ambient air temperatures.

  After the system overheating issue is resolved and the adapter has cooled down, reboot the system or, if the system supports hot swapping, cycle the power of the adapter slot.

Personality Area

The Current field indicates the current personality in use by the adapter.

After Reboot Area

- FCoE – Check to choose the FCoE personality.
- iSCSI – Check to choose the iSCSI personality.
- NIC Only – Check to choose the NIC only personality.

License Features Area

- Shows the available personalities.
- Shows the status of the available personalities.

Adapter Information Tab Buttons

- Apply – Click to apply the selected personality.
- Install Feature Licenses – Click to install licenses.

7. Port View

FC and FCoE Ports

Viewing FC Port Details and Changing Link State

When you select an FC port from the Emulex Device Management tree-view, the Port Details tab contains general attributes associated with the selected FC adapter. A button in the Port Status area enables you to disable or enable the port. This button toggles between Disable and Enable, depending upon the current status of the physical port.

To view details for an FC port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port for which you want to view information.
3. Select the **Port Details** tab.

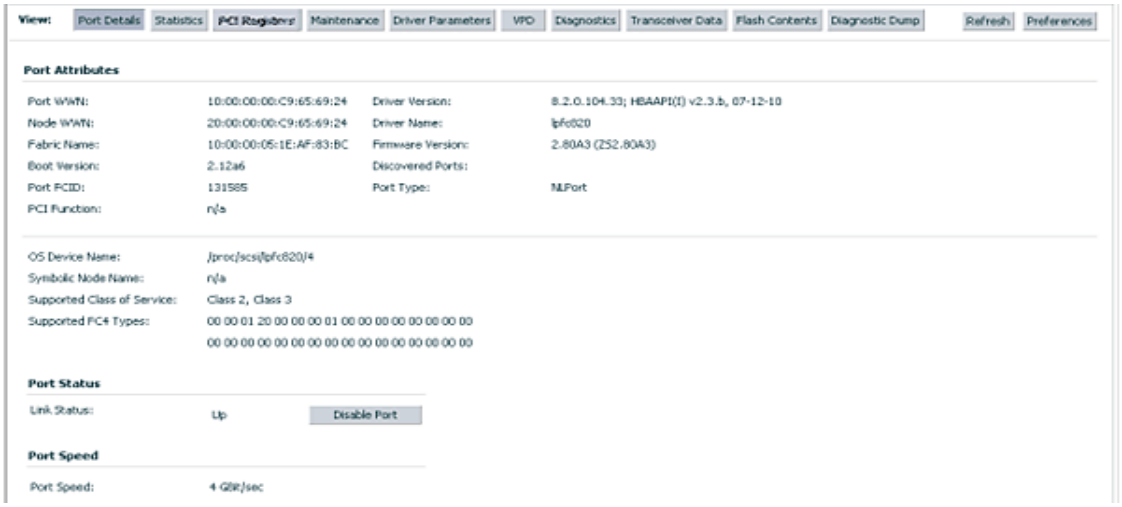

Figure 7-1 FC Port Details Tab

FC Port Details Tab Field Definitions

Port Attributes Area

- Port WWN – The port World Wide Name of the adapter.
- Node WWN – The node World Wide Name of the selected adapter.
- Fabric Name – The Fabric Name is a 64-bit worldwide unique identifier assigned to the fabric.
- Boot Version – The version of boot code installed on the selected adapter port. If the boot code is disabled, the field shows “Disabled”.
- Port FC ID – The FC ID of the selected adapter port.

- PCI Function – The PCI function number of the selected port.
- Driver Version – The version of the driver installed for the adapter.
- Driver Name – The executable file image name for the driver as it appears in the Emulex driver download package.
- Firmware Version – The version of Emulex firmware currently active on the adapter port.
- Discovered Ports – The number of mapped and unmapped ports found during discovery by the Emulex adapter driver. The mapped ports are targets and the unmapped ports are non-targets such as switches or adapters.
- Port Type – The current operational mode of the selected adapter's port.
- OS Device Name – The platform-specific name by which the selected adapter is known to the operating system.
- Symbolic Node Name – The FC name used to register the driver with the name server.
- Supported Class of Service – A frame delivery scheme exhibiting a set of delivery characteristics and attributes. There are three classes of service.
  - Class 1 provides a dedicated connection between a pair of ports with confirmed delivery or notification of non-delivery.
  - Class 2 provides a frame switched service with confirmed delivery or notification of non-delivery.
  - Class 3 provides a frame switched service similar to Class 2 but without notification of frame delivery or non-delivery.
- Supported FC4 Types – A 256-bit (8-word) map of the FC-4 protocol types supported by the port containing the selected adapter.

Port Status Area

The Link Status field indicates the status of the link on the selected adapter port.

FC Port Details Tab Buttons

The Enable/Disable button toggles between Disable and Enable, depending upon the current status of the physical port.

Port Speed Area

The Port Speed field indicates the current port speed of the selected adapter port.

Viewing FC/FCoE Target Information

When you select a port target associated with an FC/FCoE adapter from the Emulex Device Management tree-view, the Target Information tab shows information associated with that target.

To view FC/FCoE target information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC/FCoE target port whose information you want to view. The Target Information tab appears.

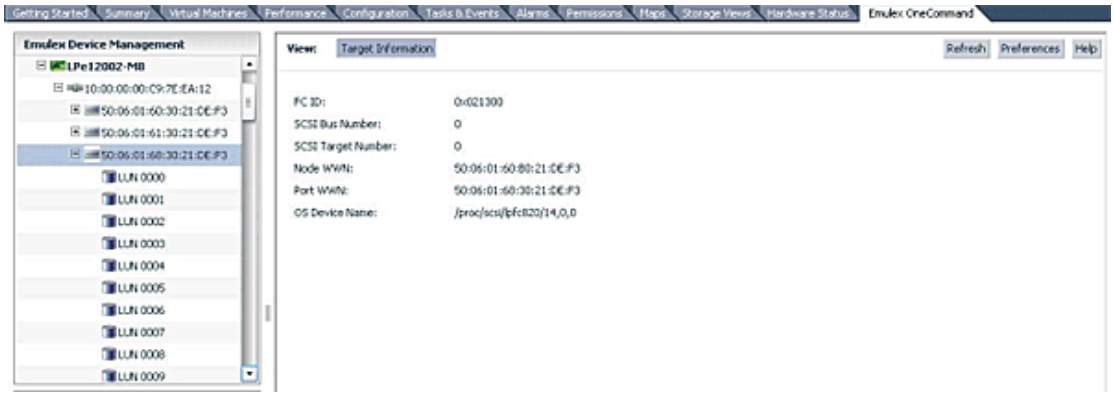

Figure 7-2 Target Information Tab

Target Information Field Definitions

- FC ID – The FC ID for the target; assigned automatically in the firmware.
- SCSI Bus Number – The SCSI bus number to which the target is mapped.
- SCSI Target Number – The target's identifier on the SCSI bus.
- Node WWN – A unique 64-bit number, in hexadecimal, for the target (N_PORT or NL_PORT).
- Port WWN – A unique 64-bit number, in hexadecimal, for the fabric (F_PORT or Switched Fabric Loop Port [FL_PORT]).
- OS Device Name – The operating system device name.

Viewing FC Port Statistics

The Statistics tab provides cumulative totals for various error events and statistics on the port. Some statistics are cleared when the adapter is reset.

To view statistics for an FC port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port for which you want to view statistics information.

3. Select the **Statistics** tab.

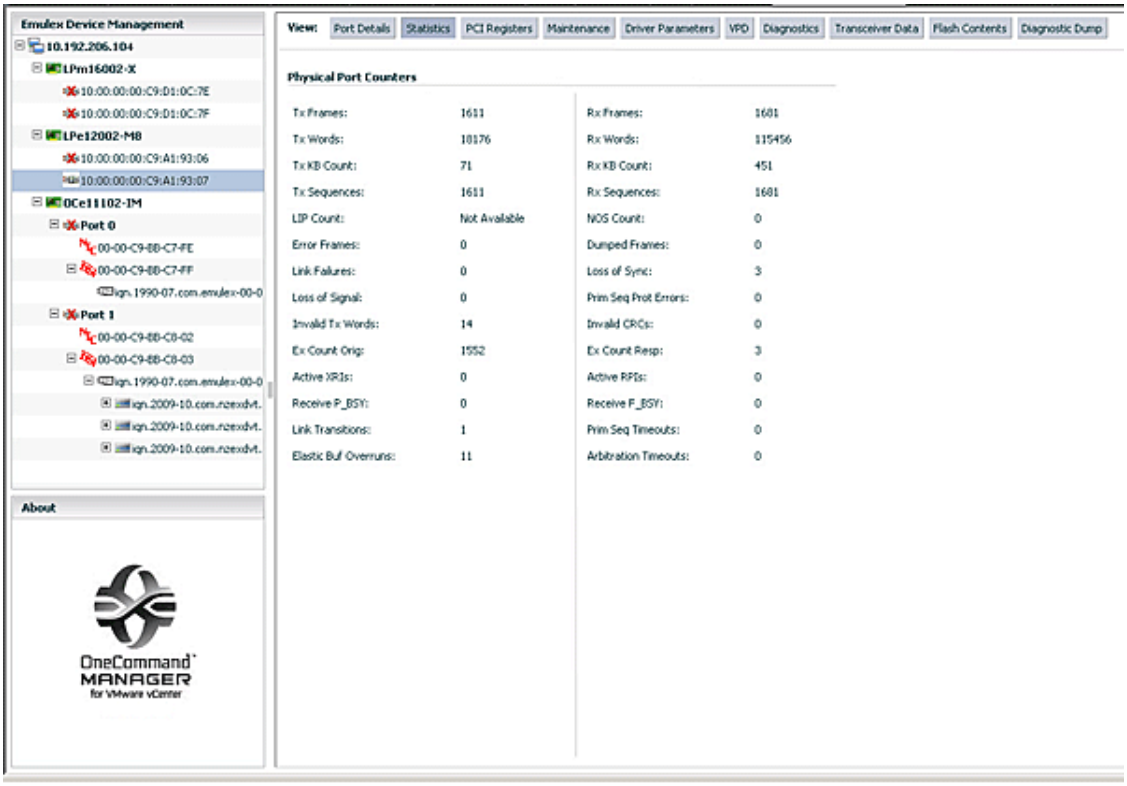

Figure 7-3 FC Port Statistics Tab

Port Statistics Tab Field Definitions

- Tx Frames – The FC frames transmitted by this adapter port.
- Tx Words – The FC words transmitted by this adapter port.
- Tx KB Count – The FC kilobytes transmitted by this adapter port.
- Tx Sequences – The FC sequences transmitted by this adapter port.
- LIP count – The number of loop initialization primitive (LIP) events that have occurred for the port. This field is supported only if the topology is arbitrated loop. Loop initialization consists of the following:
  - Temporarily suspending loop operations.
  - Determining whether loop capable ports are connected to the loop.
  - Assigning AL_PA IDs.
  - Providing notification of configuration changes and loop failures.
  - Placing loop ports in the monitoring state.
- Error Frames – The number of frames received with cyclic redundancy check (CRC) errors.
- Link Failures – The number of times the link has failed. A link failure can cause a timeout.
- Loss of Signal – The number of times the signal was lost.

- Invalid Tx Words – The total number of invalid words transmitted by this adapter port.
- Ex Count Orig – The number of FC exchanges originating on this port.
- Active XRIs – The number of active exchange resource indicators.
- Received P_BSY – The number of FC port-busy link response frames received.
- Link Transitions – The number of times the SLI port sent a link attention condition.
- Elastic Buf Overruns – The number of times the link interface has had its elastic buffer overrun.
- Rx Frames – The number of FC frames received by this adapter port.
- Rx Words – The number of FC words received by this adapter port.
- Rx KB Count – The received kilobyte count by this adapter port.
- Rx Sequences – The number of FC sequences received by this adapter port.
- NOS count – The number of NOS events that have occurred on the switched fabric (not supported for an arbitrated loop).
- Dumped Frames – The number of frames that were lost due to a lack of host buffers available.
- Loss of Sync – The number of times loss of synchronization has occurred.
- Prim Seq Prot Errs – The primitive sequence protocol error count. This counter is incremented whenever there is any type of protocol error.
- Invalid CRCs – The number of frames received that contain CRC failures.
- Ex Count Resp – The number of FC exchange responses made by this port.
- Active RPIs – The number of remote port indicators.
- Receive F_BSY – The number of FC port-busy link response frames received.
- Primitive Seq Timeouts – The number of times a primitive sequence event timed out.
- Arbitration Timeouts – The number of times the arbitration loop has timed out. Large counts could indicate a malfunction somewhere in the loop or heavy usage of the loop.

Viewing FC/FCoE LUN Information

When you select a LUN associated with an FC/FCoE adapter from the Emulex Device Management tree-view, the LUN Info pane shows information associated with that LUN.

To view LUN information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC/FCoE LUN whose information you want to view. The corresponding LUN Info pane appears.

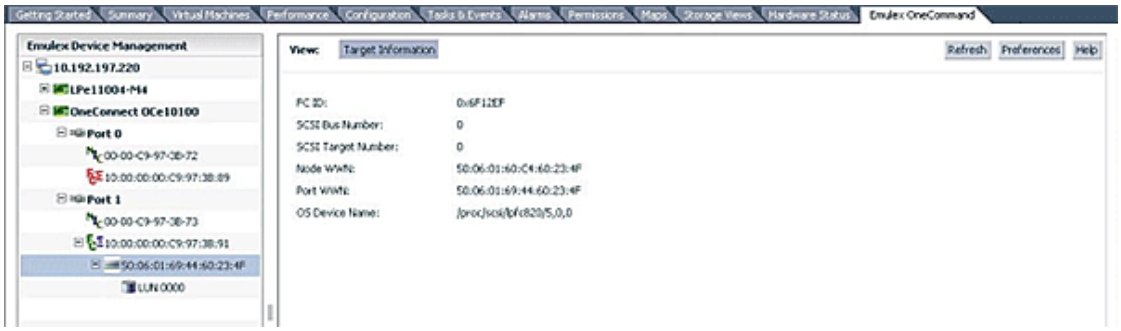

Figure 7-4 FC LUN Information Tab

FC/FCoE LUN Information Field Definitions

Vendor Product Information Area

- Vendor Name – The name of the vendor of the LUN.
- Product ID – The vendor-specific ID for the LUN.
- Revision – The vendor-specific revision number for the LUN.

Mapping Information Area

- FCP LUN – The FC identifier used by the adapter to map to the operating system LUN.
- SCSI OS LUN – The SCSI identifier used by the operating system to map to the specific LUN.
- OS Device Name – The name assigned by the operating system to the LUN.

LUN Capacity Area

LUN capacity information is only provided when the LUN is a mass-storage (disk) device. Other devices like tapes and scanners, etc. do not display capacity.

- Capacity – The capacity of the LUN, in megabytes.
- Block Size – The length of a logical unit block in bytes.

Viewing PCI Registers for an FC Port

The PCI Registers tab shows PCI information, including PCI Express details, about the selected FC port.

Note: The PCI fields may vary with the type of adapter installed.

To view PCI registers for an FC port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port for which you want to view PCI information.

3. Select the **PCI Registers** tab.

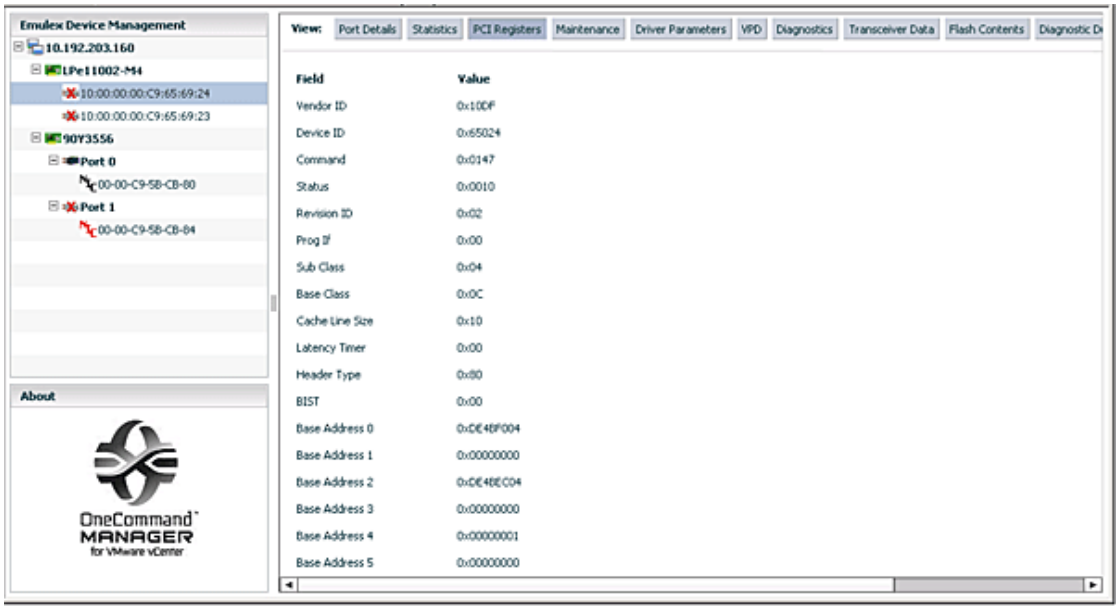

Figure 7-5 FC Port PCI Registers Tab

Viewing FC Port Transceiver Information

The Transceiver Data tab enables you to view transceiver information such as vendor name, serial number, part number and so on. If the adapter/transceiver does not support some or all of the transceiver data, the fields display N/A.

To view transceiver information for an FC port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port whose transceiver information you want to view.

3. Select the **Transceiver Data** tab.

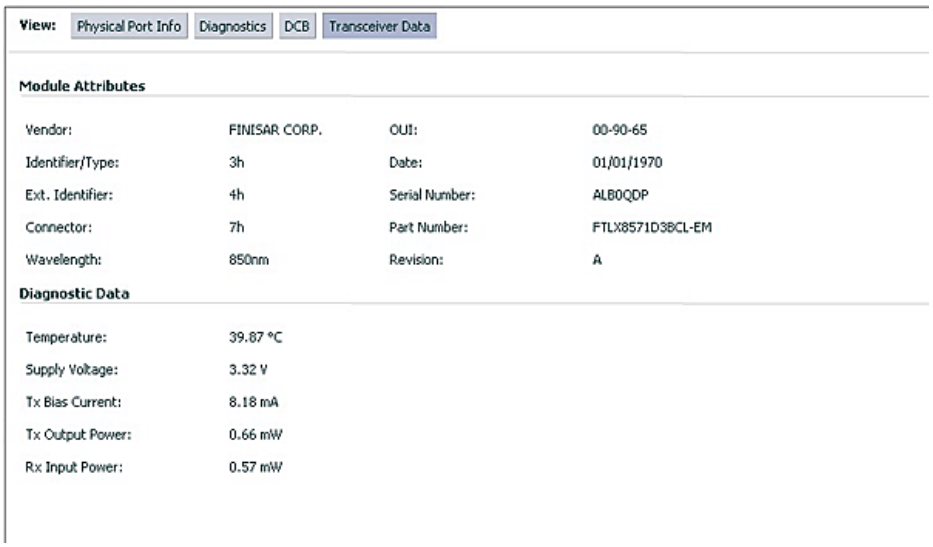

Figure 7-6 FC Port Transceiver Tab

Transceiver Information Field Definitions

Module Attributes Area

- Vendor – The name of the vendor.
- Identifier/Type – The identifier value that specifies the physical device described by the serial information.
- Ext. Identifier – Additional information about the transceiver.
- Connector – The external optical or electrical cable connector provided as the media interface.
- Wavelength – The nominal transmitter output wavelength at room temperature.
- OUI – The vendor's Organizationally Unique Identifier. It is also known as the IEEE Company Identifier for the vendor.
- Date – The vendor's date code in the MM/DD/YY format.
- Serial Number – The serial number provided by the vendor.
- Part Number – The part number provided by the SFP vendor.
- Revision – The vendor revision level.

Diagnostic Data Area

- Temperature – The internally measured module temperature.
- Supply Voltage – The internally measured supply voltage in the transceiver.
- TX Bias Current – The internally measured TX bias current.
- TX Output Power – The measured TX output power.
- RX Input Power – The measured RX input power.

Viewing Flash Contents

To view the flash contents for an FC port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port whose Flash contents you want to view.
3. Select the **Flash Contents** tab. The Flash Contents information pane appears.

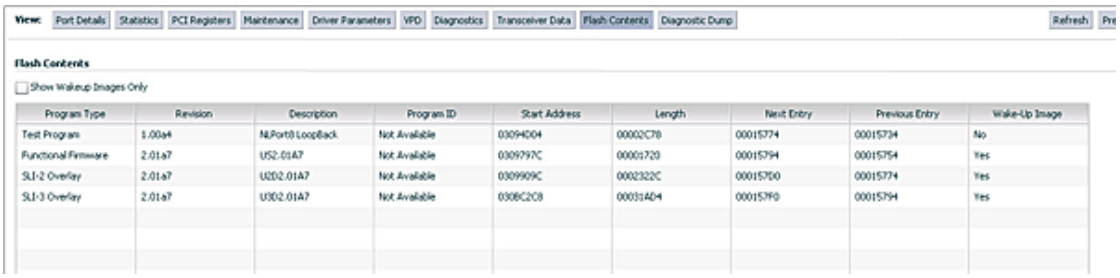

Figure 7-7 FC Port Flash Contents

4. Select the **Show Wakeup Images Only** checkbox if you want to see only the flash contents with the wake-up images.

Viewing FC Port Firmware Versions

The Maintenance tab shows firmware information for an FC port.

To view firmware information for an FC port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port for which you want to view firmware information.

3. Select the **Maintenance** tab.

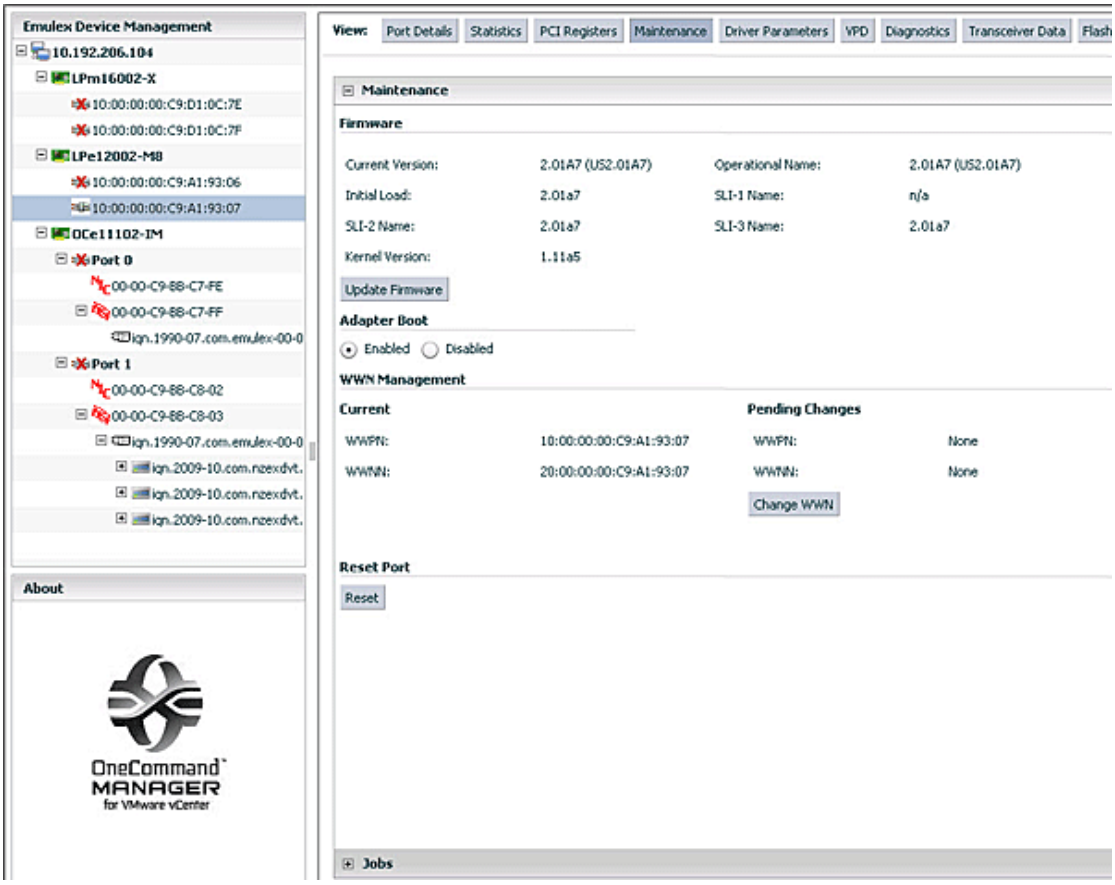

Figure 7-8 FC Port Maintenance Tab

Maintenance Tab Field Definitions

Firmware Area

- Current Version – The Emulex firmware version number for this model of adapter.
- Initial Load – The firmware version stub responsible for installing SLI code into its proper slot.
- SLI-2 Name – The name of the SLI-2 firmware overlay.
- Kernel Version – The version of the firmware responsible for starting the driver.
- Operational Name – The name of the operational firmware for the selected adapter.
- SLI-1 Name – The name of the SLI-1 firmware overlay.
- SLI-3 Name – The name of the SLI-3 firmware overlay.

WWN Management Area

Current

- WWPN – The WWPN for the selected adapter port.
- WWNN – The WWNN for the selected adapter port.

Pending Changes

- WWPN – If the WWPN has been changed, the new WWPN is displayed in this list until the system is rebooted. Once rebooted, the new WWPN is displayed in the Current list.
- WWNN – If the WWNN has been changed, the new WWNN is displayed in this list until the system is rebooted. Once rebooted, the new WWNN is displayed in the Current list.

Maintenance Tab Buttons

- Update Firmware – Click to update firmware on the selected port.
- Change WWN – Click to change the selected adapter port's WWPN or WWNN. Refer to "Changing WWN Configuration for an FC Port" on page 76 for more information.
- Reset – Click to reset the adapter port. Refer to "Resetting an FC Port" on page 79 for more information.

Updating Firmware for an FC Port

To update firmware for an FC port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port for which you want to update firmware.
3. Select the **Maintenance** tab and click **Update Firmware**. If a warning screen appears, click **Yes**. The Firmware Download dialog box appears.

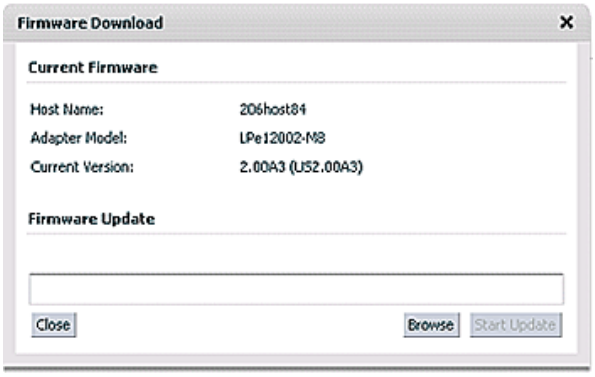

Figure 7-9 Firmware Download dialog box

4. Click **Browse** and navigate to the unzipped, extracted image file you want to download.

5. On the browse window, select the file and click **OK**. The Firmware Download dialog box appears.
6. Click **Start Update**. A message prompting you to confirm the firmware update appears. Click **Yes**. When the update begins, the Jobs window is displayed (Figure 7-10). A status message in the Active Job list shows the progress of the download. The ports on which the firmware is being downloaded have the status "Job is in progress", the others have "Waiting in queue to start". When download is completed, the entry moves to the Completed Jobs window. The status message field in the Completed Jobs window shows the status of the completed job.

   Note: If you start a firmware update and log out from the vSphere console before the firmware update is completed, all pending jobs fail.

   Note: The firmware update progresses in the background until all the jobs are completed. During this period you can still browse through the other tabs.

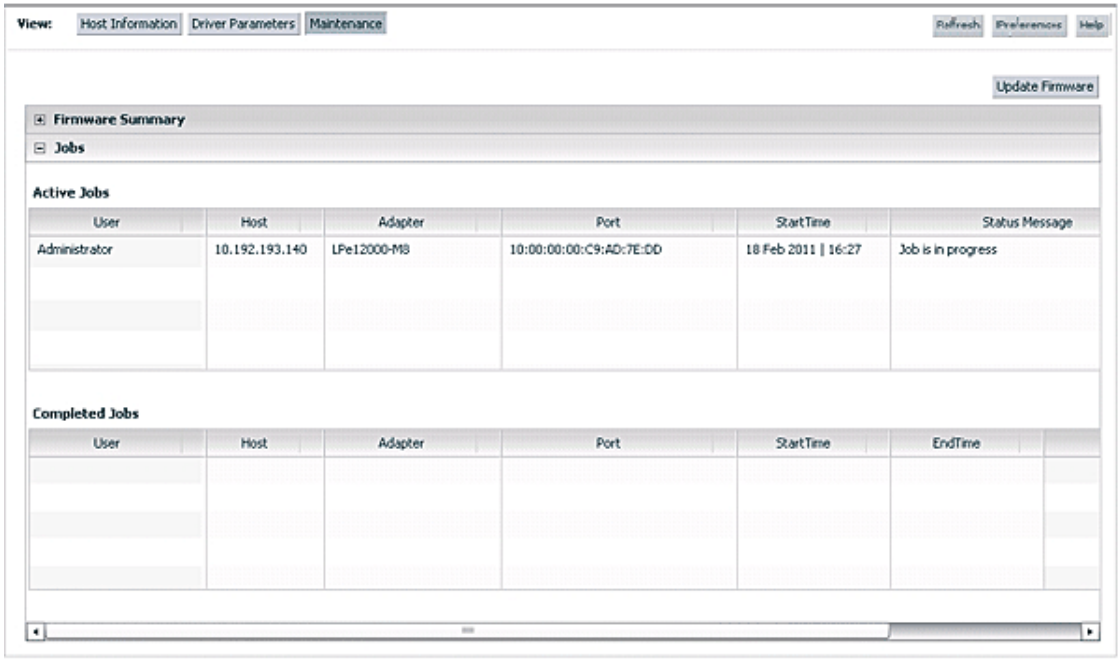

Figure 7-10 Jobs Window

Jobs Window Field Definitions

Active Jobs Column Definitions

- User – The user who triggered the firmware update.
- Host – The IP address of the ESX host to which the adapter or port belongs.
- Adapter – The model of the adapter selected for the firmware update request.
- Port – The Port WWN selected for the firmware update. This field is applicable for FC ports only.

- Start Time – The time the firmware update is submitted.
- End Time – The time of completion of the firmware update.
- Status Message – The status of the firmware update action. This field also indicates if a reboot is required to activate the firmware.

Completed Jobs Column Definitions

- User – The user who triggered the firmware update.
- Host – The IP address of the host to which the adapter/port belongs.
- Adapter – The model of the adapter.
- Port – The port WWN for a LightPulse adapter. This field is blank if it is a OneConnect adapter.
- Start Time – The time the job is submitted.
- End Time – The time the job is completed.
- Status Message – The status of the job.

Jobs Window Buttons

- Update Firmware – Click to update firmware on a different adapter in the same cluster.
- Cancel Updates – Click to cancel the jobs with "Waiting in queue to start" status.

Changing WWN Configuration for an FC Port

The Maintenance tab enables you to change the WWPN and the WWNN of a selected adapter port. For example, you might want to use an installed adapter as a standby if another installed adapter fails. By changing the standby adapter's WWPN or WWNN, it can assume the identity and configuration (such as driver parameters and persistent binding settings) of the failed adapter.

There are three options for referencing WWNs:

- Factory default WWN – The WWN as shipped from the factory.
- Non-volatile WWN – The values that are saved in the non-volatile adapter's flash memory that survive a reboot and/or power outage.
- Volatile WWN – A temporary value that is saved in the volatile memory on the flash. If volatile WWNs are set, they are used instead of the non-volatile WWNs. Volatile WWN changes require a warm system reboot to take effect. Volatile WWN changes are lost on systems that power cycle the adapters during the reboot.

  Caution: Changing volatile WWNs result in taking the selected adapter offline. Ensure that this adapter is not controlling a boot device and all I/O activity on this adapter has stopped before proceeding. Emulex assumes no responsibility for the consequences of making volatile WWN changes on a boot adapter.

Considerations When Changing WWN Configuration for an FC Port

- To avoid address conflicts, do not assign a WWNN or WWPN with OCM for VMware vCenter if you also use another address management tool.
- The WWPN and WWNN in the Pending Changes list can show "n/a" instead of "none". This happens when the remote host is busy processing some critical task and WWN Management cannot obtain the current state of WWN management.
- In an environment where preboot management exists, a WWPN or WWNN modified by OCM for VMware vCenter can be overridden by preboot management such as IBM BladeCenter Open Fabric Manager (BOFM) and industry standard Command Line Protocol (CLP).

  For example:

  - In an environment with CLP/BOFM: OCM for VMware vCenter modifies the WWNN or WWPN. OCM for VMware vCenter requires a reboot to complete the change. After a reboot, the CLP string is sent during system boot and rewrites the WWNN or WWPN, or EFIBoot finds the BOFM protocol and uses the default WWNN or WWPN per BOFM's command.
  - In environment without CLP/BOFM: OCM for VMware vCenter modifies the WWNN or WWPN. OCM for VMware vCenter requires a reboot to complete the change. The system comes up and OCM for VMware vCenter modified WWNN or WWPN is used.
- On the system where OCM for VMware vCenter is installed, make sure the port numbers configured during the installation are open and dedicated to the OCM for VMware vCenter server only. No other service should be listening on this port.

To change a port's WWPN or WWNN:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port for which you want to change the WWN information.
3. Select the **Maintenance** tab (Figure 7-8).

4. Click **Change WWN**. The Change WWN Configuration dialog box appears.

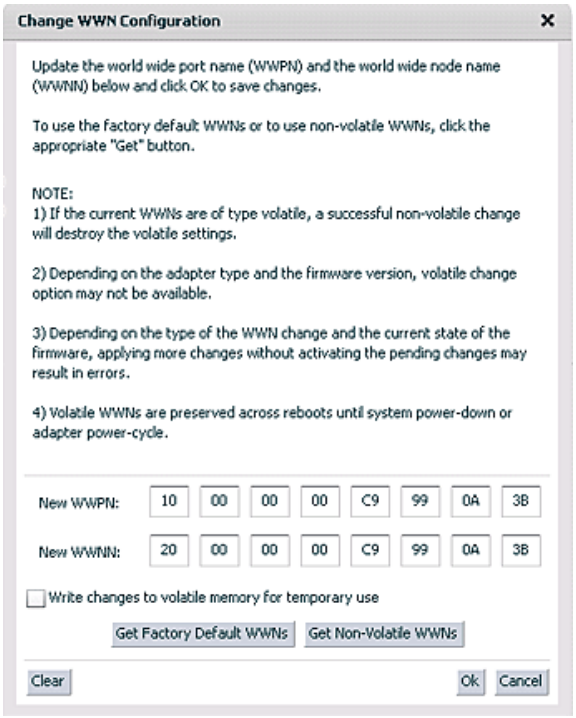
Change WWN Configuration
Update the world wide port name (WWPN) and the world wide node name (WWNN) below and click OK to save changes.
To use the factory default WWNs or to use non-volatile WWNs, click the appropriate "Get" button.
NOTE:
1) If the current WWNs are of type volatile, a successful non-volatile change will destroy the volatile settings.
2) Depending on the adapter type and the firmware version, volatile change option may not be available.
3) Depending on the type of the WWN change and the current state of the firmware, applying more changes without activating the pending changes may result in errors.
4) Volatile WWNs are preserved across reboots until system power-down or adapter power-cycle.
New WWPN: 10 00 00 00 C9 99 0A 3B
New WWNN: 20 00 00 00 C9 99 0A 3B
Write changes to volatile memory for temporary use
Get Factory Default WWNs
Get Non-Volatile WWNs
Clear
Ok
Cancel

Figure 7-11 Change WWN Configuration Dialog Box

5. Do one of the following:
   - Enter a new WWPN or WWNN.
   - Click **Get Factory Default WWNs** to load the settings that were assigned when the adapter was manufactured. These values can then be modified and saved as volatile or non-volatile WWNs.
   - Click **Get Non-Volatile WWNs** to load the current non-volatile WWN. These values can be modified and saved to volatile or non-volatile memory. You can edit the data returned from the button.
6. Check **Write changes to volatile memory for temporary use** to save the New WWPN and New WWNN settings as volatile WWNs. If cleared, the New WWPN and New WWNN settings are saved as non-volatile WWNs.

   Note: If the adapter or firmware does not support volatile WWNs, the "Write changes to volatile memory for temporary use" checkbox is disabled. This type of change is supported locally and via TCP/IP connections. This checkbox is disabled for remote in-band adapters regardless of adapter models and firmware version.

7. Click **OK**. The following warning appears.

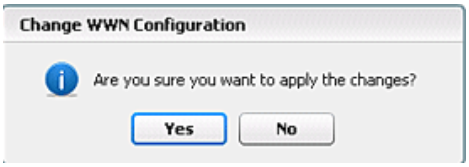

Figure 7-12 Warning About Changing WWN

8. Click **Yes**. The New WWPN and new WWNN values are saved. The new WWPN and WWNN appear in the Pending Changes list in the WWN Management area of the Maintenance tab.
9. Reboot the system for the changes to take effect. The new WWPN and WWNN appear in the Pending Changes list of the Maintenance tab until the system is rebooted. After rebooting, the changes are applied and appear in the Current section of the Maintenance tab.

   Note: After changing the WWN of an adapter, you must reboot the system before trying to access the adapter on that system.

Resetting an FC Port

Caution: Do not reset your adapter port while copying or writing files. This could result in data loss or corruption.

Note: While resetting a port on OCM for VMware vCenter, do not perform any active management operations on the ESX host.

To reset an FC port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port you want to reset.
3. Select the **Maintenance** tab (Figure 7-8).
4. Click **Reset Port**.
5. The following warning appears:

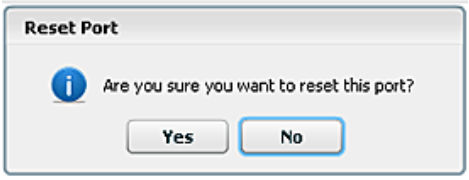

Figure 7-13 Reset Port Warning

6. Click **Yes**. The adapter port resets. The reset can require several seconds to complete. While the adapter port is resetting, the message "Operation is in progress" is displayed. When the reset is finished, the message "Reset Port Completed" is displayed.

Viewing FC Port Driver Parameters

The Driver Parameter's tab shows driver parameters for an FC Port.

To view driver parameters for an FC Port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port for which you want to view driver parameters.
3. Select the **Driver Parameters** tab.

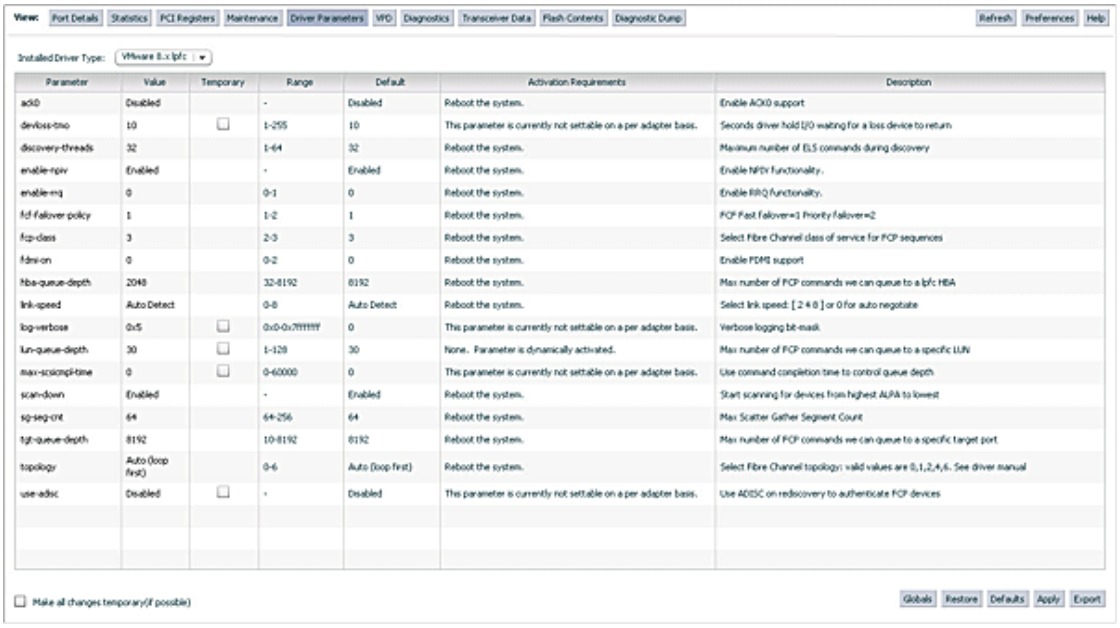
View: Port Details Statistics PCI Registers Maintenance Driver Parameters VPD Diagnostics Transceiver Data Flash Contents Diagnostic Dump
Refresh Preferences Help
Installed Driver Type: VMware 8.x lpfc
Parameter Value Temporary Range Default Activation Requirements Description
ack0 Disabled - Disabled Reboot the system. Enable ACK0 support
devloss-tmo 10 1-255 10 This parameter is currently not settable on a per adapter basis. Seconds driver hold I/O waiting for a loss device to return
discovery-threads 32 1-64 32 Reboot the system. Maximum number of ELS commands during discovery
enable-npiv Enabled - Enabled Reboot the system. Enable NPIV functionality.
enable-rrq 0 0-1 0 Reboot the system. Enable RRQ functionality.
fcf-failover-policy 1 1-2 1 Reboot the system. FCF Fast Failover=1 Priority Failover=2
fcp-class 3 2-3 3 Reboot the system. Select Fibre Channel class of service for FCP sequences
fdmi-on 0 0-2 0 Reboot the system. Enable FDMI support
hba-queue-depth 2048 32-8192 8192 Reboot the system. Max number of FCP commands we can queue to a lpfc HBA
link-speed Auto Detect 0-8 Auto Detect Reboot the system. Select link speed: [2 4 8] or 0 for auto negotiate
log-verbose 0x5 0x0-0x7fffffff 0 This parameter is currently not settable on a per adapter basis. Verbose logging bit-mask
lun-queue-depth 30 1-128 30 None. Parameter is dynamically activated. Max number of FCP commands we can queue to a specific LUN
max-scsicmpl-time 0 0-60000 0 This parameter is currently not settable on a per adapter basis. Use command completion time to control queue depth
scan-down Enabled - Enabled Reboot the system. Start scanning for devices from highest ALPA to lowest
sg-seg-cnt 64 64-256 64 Reboot the system. Max Scatter Gather Segment Count
tgt-queue-depth 8192 10-8192 8192 Reboot the system. Max number of FCP commands we can queue to a specific target port
topology Auto (loop first) 0-6 Auto (loop first) Reboot the system. Select Fibre Channel topology: valid values are 0,1,2,4,6. See driver manual
use-adisc Disabled - Disabled This parameter is currently not settable on a per adapter basis. Use ADISC on rediscovery to authenticate FCP devices
Make all changes temporary(if possible)
Globals Restore Defaults Apply Export

Figure 7-14 FC Port Driver Parameters Tab

Driver Parameters Tab Field Definitions

- Installed Driver Type – The current driver installed on this host.
- Port Parameter table – A list of port driver parameters and their current values.
  - Parameter – The driver parameter's name.
  - Value – The driver parameter's value.
  - Temporary – Indicates if the value is temporary.
  - Range – The range of acceptable values for the driver parameter.
  - Default – The driver parameter's default value.
  - Additional Activation Requirements – The steps required to activate the changed value of the driver parameter.
  - Description – The driver parameter's description.

Driver Parameters Tab Buttons

- Globals – Click to set a port parameter value to the corresponding host parameter value. All parameter values will be the same as the global, or host, values.
- Restore – Click if you changed parameters, but did not click Apply and you want to restore the parameters to their last saved values.
- Defaults – Click to reset all parameter values to their default (factory) values.
- Apply – Click to apply the global values.
- Save – Click to save a desired port parameter configuration.
- Refresh – Click to refresh the information.

Setting Driver Parameters for an FC Port

To change the driver parameters for an FC port using the Value field:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port for which you want to change the driver parameters.
3. Select the **FC port Driver Parameters** tab.
4. In the driver parameter table, click the **Value** field of a parameter that you want to change. The range for the value is displayed. Enter a value in decimal or hexadecimal format, depending on how the current value is presented. If the value is in hexadecimal format, it is prefaced by "0x" (for example -"0x2d"). You can enter a hexadecimal value without the "0x". For example, if you enter ff10, this value is interpreted and displayed as "0xff10".
5. If you want the change to be temporary (causing the parameter to revert to its last permanent setting when the system is rebooted), check the **Temporary** box. This option is available only for dynamic parameters.
6. If you are making changes to multiple parameters, and you want all the changes to be temporary, check the **Make all changes temporary** box. This setting overrides the setting of the Make change temporary box. Only dynamic parameters can be made temporary.
7. Click **Apply**.

Saving Driver Parameters for an FC Port to a File

To change the driver parameters for an FC port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port for which you want to change the driver parameters.
3. Select the **FC port Driver Parameters** tab.

4. Click **Save** to create and save a desired port parameter configuration. Each definition is saved in a comma-delimited file with the following format:

   `<parameter-name>=<parameter-value>`

5. Click **Apply** to apply your configuration changes.

Viewing FC Port Vital Product Data (VPD)

The VPD tab shows vital product data (if available) for the selected FC port such as the product name, part number, and serial number for example.

To view the VPD information for an FC port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port whose VPD information you want to view.
3. Select the **VPD** tab.

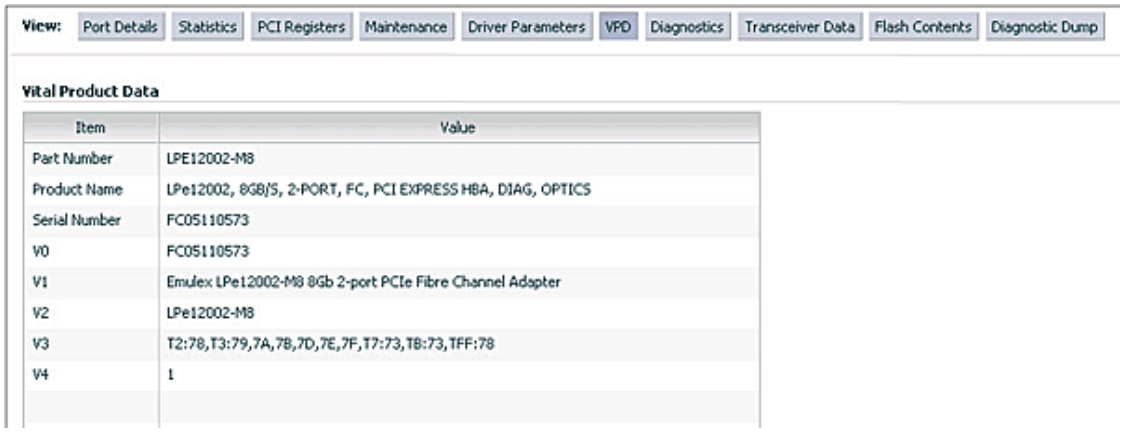

Figure 7-15 FC Port VPD Tab

VPD Table Definitions

- Product Name – The product information about the selected adapter port.
- Part Number – The adapter's part number.
- Serial Number – The adapter's serial number.
- VO – The vendor unique data. “V” indicates a vendor-specific field. An adapter may have none, one or more of these fields defined. Valid values for this field are “VO” (the letter “O”, not the number zero) and “Vx” (where “x” is a number).

Note: Some adapters may show additional VPD information such as engineering change (EC) level) and MN (manufacturer ID).

Viewing FCoE Port Details

Use the Port Details tab to view general attributes associated with the selected FCoE port.

To view port details for an FCoE port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port whose details you want to view.
3. Select the **Port Details** tab.

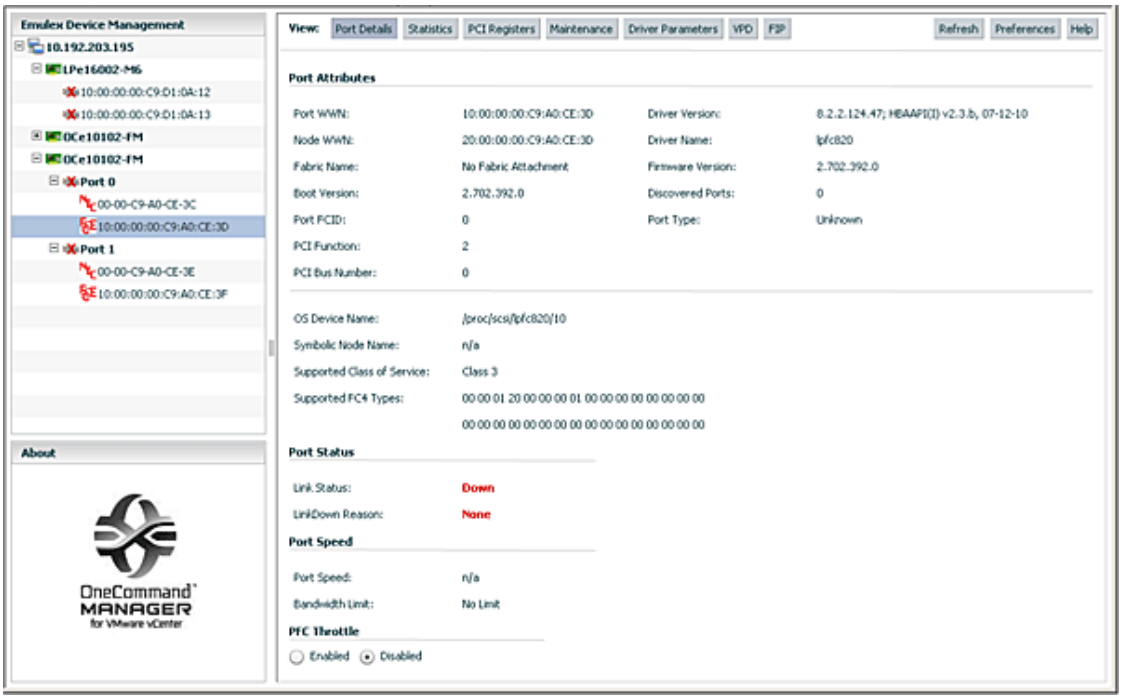

Figure 7-16 FCoE Port Details Tab

FCoE Port Details Field Definitions

Port Attributes Area

- Port WWN – The port World Wide Name of the adapter.
- Node WWN – The node World Wide Name of the selected adapter.
- Fabric Name – The Fabric Name field is displayed in Host view. This is a 64-bit worldwide unique identifier assigned to the fabric. The host name is the name of the host containing the adapter.
- Boot Version – The version of boot code installed on the selected adapter port. If the boot code is disabled, the field shows “Disabled”.
- Port FC ID – The FCoE ID for the selected adapter port.
- PCI Function – The PCI function number assigned by the system.

- Driver Version – The version of the driver installed for the adapter.
- Driver Name – The executable file image name for the driver as it appears in the Emulex driver download package.
- Firmware Version – The version of Emulex firmware currently active on the adapter port.
- Discovered Ports – The number of mapped and unmapped ports found during discovery by the Emulex adapter driver. The mapped ports are targets and the unmapped ports are non-targets such as switches or adapters.
- Port Type – The current operational mode of the selected adapter's port.
- OS Device Name – The platform-specific name by which the selected adapter is known to the operating system.
- Symbolic Node Name – The FC name used to register the driver with the name server.
- Supported Class of Service – A frame delivery scheme exhibiting a set of delivery characteristics and attributes. There are three classes of service.
  - Class 1 provides a dedicated connection between a pair of ports with confirmed delivery or notification of non-delivery.
  - Class 2 provides a frame switched service with confirmed delivery or notification of non-delivery.
  - Class 3 provides a frame switched service similar to Class 2 but without notification of frame delivery or non-delivery.
- Supported FC4 Types – A 256-bit (8-word) map of the FC-4 protocol types supported by the port containing the selected adapter.

Port Status Area

- Link Status – The status of the link on the selected adapter port.
- LinkDown Reason - The reason for the Link Status on the selected port.
- Port Speed – The current port speed of the selected adapter port.
- Bandwidth Limit – The Quality of Service (QoS) bandwidth restriction on the port.

Enabling/Disabling PFC Throttle on an FCoE Port

To enable or disable PFC throttle:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port whose PFC throttle status you want to change.
3. Select the **Port Details** tab (Figure 7-1).
4. In the PFC Throttle area, select **Enable** or **Disable**. PFC throttle is immediately enabled or disabled, depending upon your selection.

Note: The Enable/Disable button is disabled for OCe11x adapters.

Viewing FCoE Port Statistics

The Statistics tab provides cumulative totals for various error events and statistics on the port. Some statistics are cleared when the adapter is reset. When you select an FCoE port from the Emulex Device Management tree-view, the Statistics pane contains statistics associated with the selected port.

To view statistics for an FCoE port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port whose statistics information you want to view.
3. Select the **Statistics** tab.

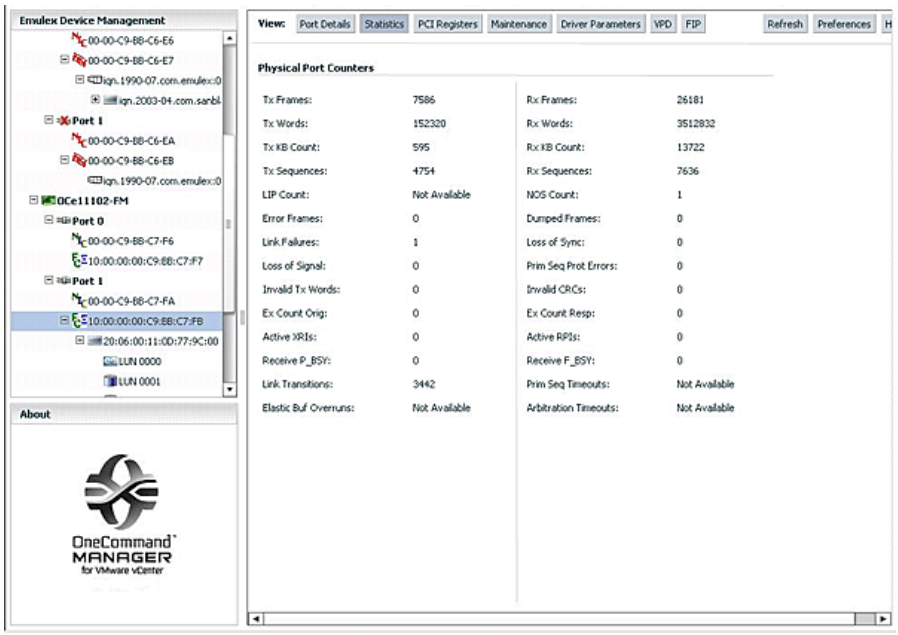

Figure 7-17 FCoE Port Statistics Tab

Port Statistics Field Definitions

- Tx Frames – The FC frames transmitted by this adapter port.
- Tx Words – The FC words transmitted by this adapter port.
- Tx KB Count – The FC kilobytes transmitted by this adapter port.
- Tx Sequences – The FC sequences transmitted by this adapter port.
- LIP Count – The number of loop initialization primitive (LIP) events that have occurred for the port. This field is not supported if the topology is not arbitrated loop. Loop initialization consists of the following:
  - Temporarily suspending loop operations.
  - Determining whether loop capable ports are connected to the loop.
  - Assigning AL_PA IDs.

  - Providing notification of configuration changes and loop failures.
  - Placing loop ports in the monitoring state.
- Error Frames – The number of frames received with cyclic redundancy check (CRC) errors.
- Link Failures – The number of times the link has failed. A link failure is a one possible cause of a timeout.
- Loss of Signal – The number of times the signal was lost.
- Invalid Tx Words – The total number of invalid words transmitted by this adapter port.
- Ex Count Orig – The number of FC exchanges originating on this port.
- Active XRIs – The number of active exchange resource indicators.
- Received P_BSY – The number of FC port-busy link response frames received.
- Link Transitions – The number of times the SLI port sent a link attention condition.
- Elastic Buf Overruns – The number of times the link interface has had its elastic buffer overrun.
- Rx Frames – The number of FC frames received by this adapter port.
- Rx Words – The number of FC words received by this adapter port.
- Rx KB Count – The received kilobyte count by this adapter port.
- Rx Sequences – The number of FC sequences received by this adapter port.
- NOS count – NOS count – The number of Not Operational Sequence (NOS) events that have occurred on the switched fabric (not supported for an arbitrated loop).
- Dumped Frames – The number of frames that were lost due to a lack of host buffers available.
- Loss of Sync – The number of times loss of synchronization has occurred.
- Prim Seq Prot Errs – The primitive sequence protocol error count. This counter is incriminated whenever there is any type of protocol error.
- Invalid CRCs – The number of frames received that contain CRC failures.
- Ex Count Resp – The number of FC exchange responses made by this port.
- Active RPIs – The number of remote port indicators.
- Receive F_BSY – The number of FC port-busy link response frames received.
- Primitive Seq Timeouts – The number of times a primitive sequence event timed out.
- Arbitration Timeouts – The number of times the arbitration loop has timed out. Large counts could indicate a malfunction somewhere in the loop or heavy usage of the loop.

Viewing PCI Registers for an FCoE Port

The PCI Registers tab shows PCI information about the selected FCoE port.

To view PCI registers for an FCoE port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port for which you want to view PCI information.
3. Select the **PCI Registers** tab.

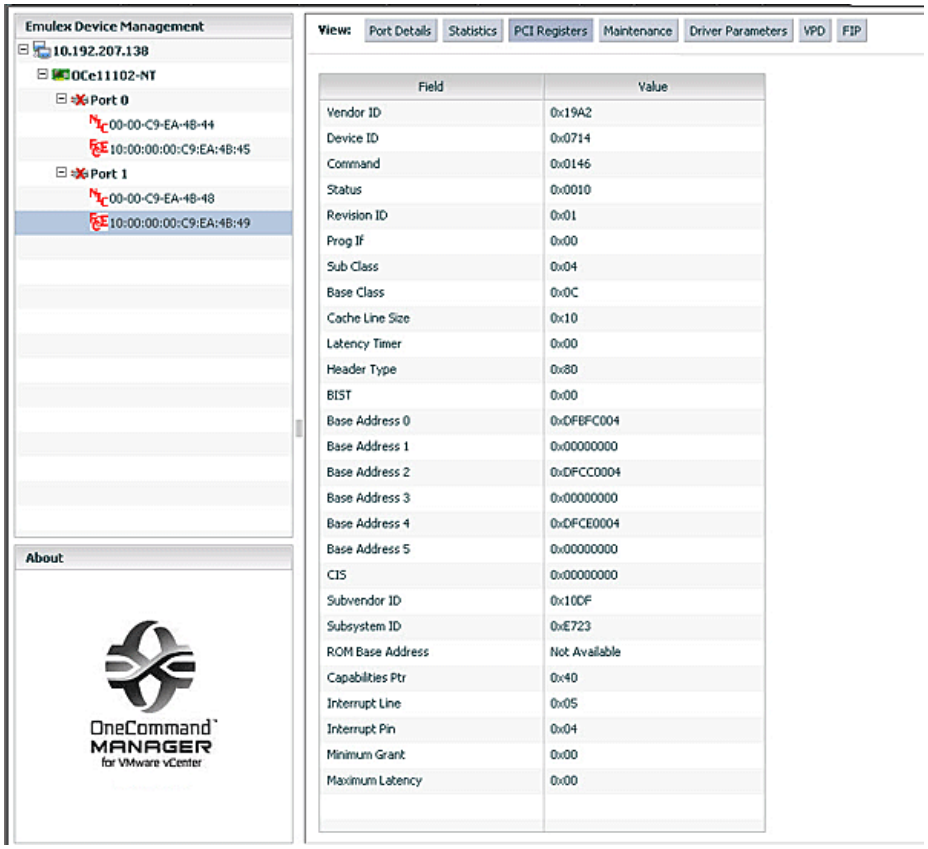

Figure 7-18 FCoE Port PCI Registers Tab

Viewing Firmware Versions for an FCoE Port

The Maintenance tab shows firmware information for an FCoE port.

To view firmware information for an FCoE port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port whose firmware information you want to view.
3. Select the **Maintenance** tab.

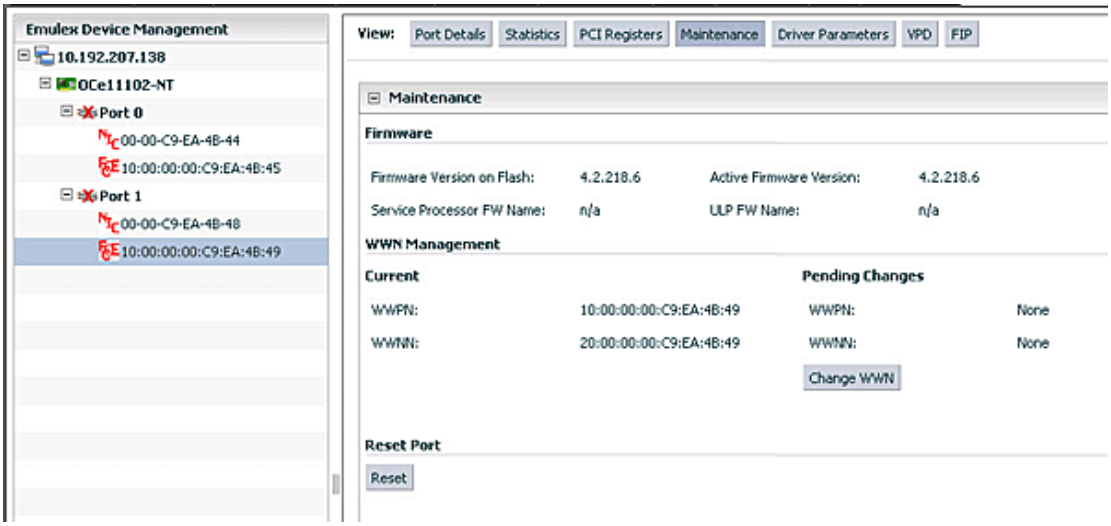

Figure 7-19 FCoE Port Maintenance Tab

Maintenance Tab Field Definitions

Firmware Area

- Firmware Version on Flash – The firmware version stored on the adapter's non-volatile storage. When the system restarts, this version becomes the active firmware version.
- Service Processor FW Version – The firmware version that is operational on the adapter.
- Active Firmware Version – The firmware version running on the selected adapter.
- ULP FW Name – The firmware version running on the (Upper Layer Protocol) processors within the ASIC.

WWN Management Area

Current

- WWPN – The WWPN for the selected adapter port.
- WWNN – The WWNN for the selected adapter port.

Pending Changes

- WWPN – If the WWPN has been changed, the new WWPN is displayed in this list until the system is rebooted. Once rebooted, the new WWPN is displayed in the Current list.
- WWNN – If the WWNN has been changed, the new WWNN is displayed in this list until the system is rebooted. Once rebooted, the new WWNN is displayed in the Current list.

Maintenance Tab Buttons

- Change WWN – Click to change the selected adapter port's WWPN or WWNN. Refer to "Changing WWN Configuration for an FCoE Port" on page 89 for more information.
- Reset – Click to reset the adapter port. Refer to "Resetting an FCoE Port" on page 91 for more information.

Changing WWN Configuration for an FCoE Port

Note: When changing WWN configuration on OCM for VMware vCenter, do not perform any active management operations on the ESX host.

To change WWN configuration for an FCoE port:

1. Select a host in the vSphere console tree-view and select the Emulex OneCommand tab.
2. In the Emulex Device Management tree-view, select the FCoE port whose WWN configuration you want to change.
3. Select the **Maintenance** tab (Figure 7-19).

4. Click **Change WWN**. The Change WWN Configuration dialog box appears.

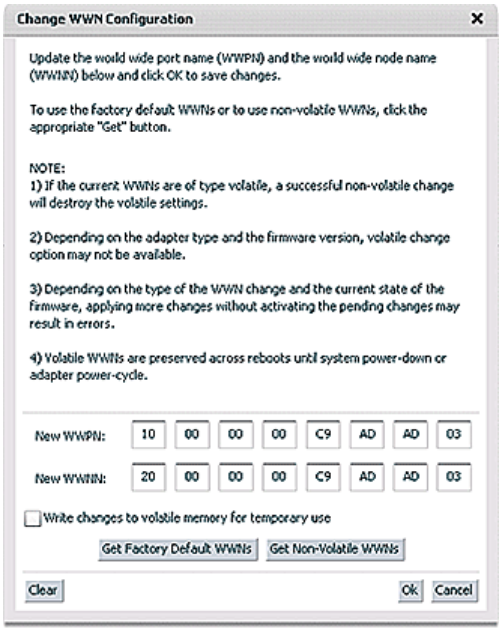
Change WWN Configuration
Update the world wide port name (WWPN) and the world wide node name (WWNN) below and click OK to save changes.
To use the factory default WWNs or to use non-volatile WWNs, click the appropriate "Get" button.
NOTE:
1) If the current WWNs are of type volatile, a successful non-volatile change will destroy the volatile settings.
2) Depending on the adapter type and the firmware version, volatile change option may not be available.
3) Depending on the type of the WWN change and the current state of the firmware, applying more changes without activating the pending changes may result in errors.
4) Volatile WWNs are preserved across reboots until system power-down or adapter power-cycle.
New WWPN: 10 00 00 00 C9 AD AD 03
New WWNN: 20 00 00 00 C9 AD AD 03
Write changes to volatile memory for temporary use
Get Factory Default WWNs
Get Non-Volatile WWNs
Clear
Ok
Cancel

Figure 7-20 Change WWN Configuration dialog box

5. Do one of the following:
   - Enter a new WWPN and/or WWNN.
   - Click **Get Factory Default WWNs** to load the settings that were assigned when the adapter was manufactured to the New WWPN and WWNN settings. These values can then be modified if desired and saved as volatile or non-volatile WWNs.
   - Click **Get Non-Volatile WWNs** to load the current non-volatile WWN settings to the New WWPN and WWNN settings. These values can then be modified if desired and saved to volatile or non-volatile memory. You can edit the data returned from the button.
6. Select the **Write changes to volatile memory for temporary use** checkbox to save the New WWPN and New WWNN settings as volatile WWNs. If this checkbox is cleared, the New WWPN and New WWNN settings are saved as non-volatile WWNs.

   Note: If the adapter or firmware does not support volatile WWNs, make sure the "Write changes to volatile memory for temporary use" checkbox is cleared. This type of change is supported locally and via TCP/IP connections. This checkbox is cleared for remote in-band adapters regardless of adapter models and firmware version.

7. Click **OK**. The following warning appears.

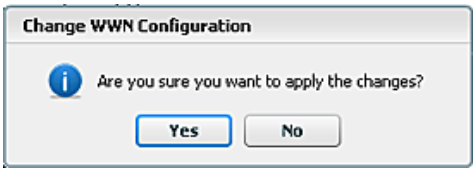

Figure 7-21 Warning About Changing WWN

8. Click **Yes**. The New WWPN and new WWNN values are saved for volatile or non-volatile use. The new WWPN and WWNN appear in the Pending Changes section in the WWN Management area of the Maintenance pane.
9. Reboot the system for the changes to take effect. The new WWPN and WWNN appear in the Pending Changes section of the Maintenance dialog box until the system is rebooted. After rebooting, the changes are applied and appear in the Current section of the Maintenance dialog box.

   Note: After changing the WWN of an adapter, you must reboot the system before trying to access the adapter on that system.

Resetting an FCoE Port

Caution: Do not reset your adapter port while copying or writing files. This could result in data loss or corruption.

For OneConnect FCoE ports, a reset is only necessary to activate changed driver parameters or FIP settings. It does not actually perform an adapter level reset of the port. When changing WWN configuration on OCM for VMware vCenter, do not perform any active management operations on the ESX host.

To reset an FCoE port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port you want to reset.
3. Select the **Maintenance** tab.
4. Click **Reset**.

   The following warning appears:

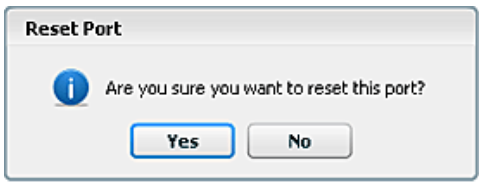

Figure 7-22 Reset Port Warning

5. Click **Yes**. The adapter port resets.

   The reset can require several seconds to complete. While the adapter port is resetting, the message "Operation is in progress is displayed." When the reset is finished, the message "Reset Port Completed" is displayed.

Viewing FCoE Port Driver Parameters

The Driver Parameters tab shows the driver parameters for an FCoE Port.

To view driver parameters for an FCoE Port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port for which you want to view driver parameters.
3. Select the **Driver Parameters** tab.

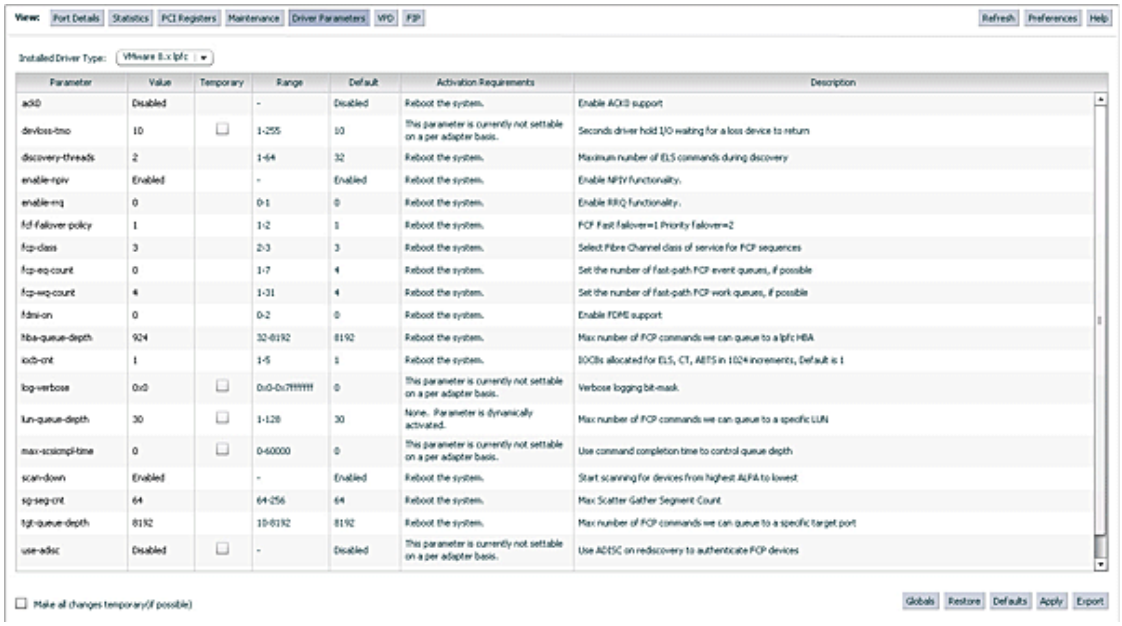

Figure 7-23 FCoE Port Driver Parameters Tab

Driver Parameters Tab Field Definitions

- Installed Driver Type – The current driver installed on this host.
- Port Parameter table – A list of port driver parameters and their current values.
  - Port-specific information is displayed in this area. This includes the value, range, default, activation requirements and description.
  - Parameter – The name of the driver parameter.
  - Value – The value of the driver parameter.
  - Temporary – Indicates if the value is temporary.
  - Range – The range of acceptable values for the driver parameter.
  - Default – The default value of the parameter.

- Additional Activation Requirements – The steps required to activate the changed value of the driver parameter.
- Description – The description of the driver parameter.

Driver Parameters Tab Buttons

- Globals – Click to set a port parameter value to the corresponding host parameter value. All parameter values will be the same as the global, or host, values.
- Restore – Click if you changed parameters, but did not click Apply and you want to restore the parameters to their last saved values.
- Defaults – Click to reset all parameter values to their default (factory) values.
- Apply – Click to apply the global values.
- Export – Click to save a desired port parameter configuration.

Setting Driver Parameters for an FCoE Port

To change the driver parameters for an FCoE port:

1. Select a host in the vSphere console tree-view and select the E**mulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port for which you want to change driver parameters.
3. Select the **Driver Parameters** tab.
4. In the driver parameter table, click the **Value** field of a parameter that you want to change. The range for the value is displayed. Enter a new value in decimal or hexadecimal format, depending on how the current value is presented. If the value is in hexadecimal format, it is prefaced by "0x" (for example -"0x2d"). You can enter a new hexadecimal value without the "0x". For example, if you enter ff10, this value is interpreted and displayed as "0xff10".
5. If you want the change to be temporary (causing the parameter to revert to its last permanent setting when the system is rebooted), check the **Temporary** check box. This option is available only for dynamic parameters.
6. If you are making changes to multiple parameters, and you want all the changes to be temporary, check the **Make all changes temporary** check box. This setting overrides the setting of the **Make change temporary** check box. Only dynamic parameters can be made temporary.
7. Click **Apply**.

Saving Driver Parameters for an FCoE Port to a File

To change the driver parameters for an FCoE port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port for which you want to change the driver parameters.

3. Select the FCoE port **Driver Parameters** tab.
4. Click **Export** to create and save a desired port parameter configuration. Each definition is saved in a comma-delimited file with the following format:

   `<parameter-name>=<parameter-value>`
5. Click **Apply** to apply your configuration changes.

Viewing FCoE Port Vital Product Data (VPD)

The VPD tab shows vital product data (if available) for the selected FCoE port such as the product name, part number, serial number, and so on.

To view VPD information for an FCoE port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port for which you want to view VPD information.
3. Select the **VPD** tab.

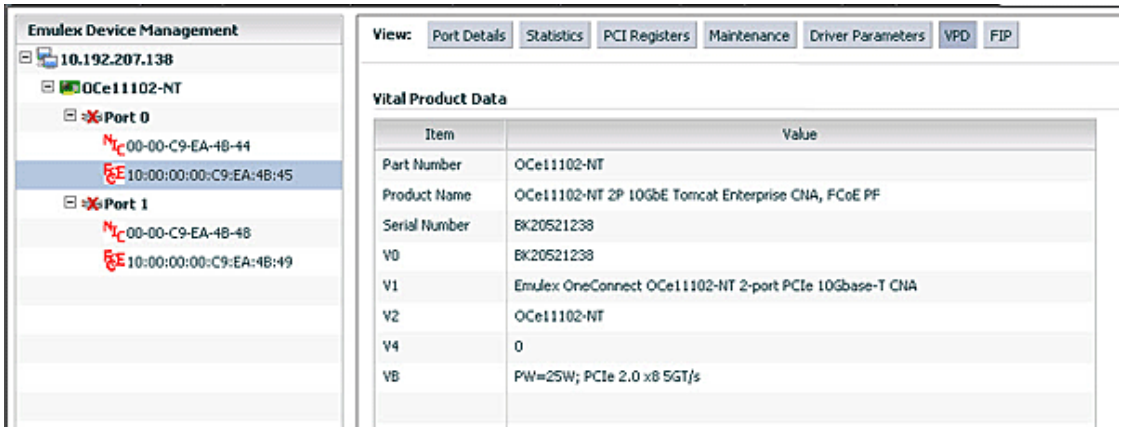

Figure 7-24 FCoE Port VPD Tab

VPD Table Definitions

- Part Number – The adapter's part number.
- Product Name – The product information about the selected adapter port.
- Serial Number – The adapter's serial number.
- VO – Vendor unique data. “V” indicates a vendor-specific field. An adapter may have none, one or more of these fields defined. Valid values for this field are “VO” (the letter “O”, not the number zero) and “Vx” (where “x” is a number).

  Note: Some adapters may show additional VPD information such as engineering change (EC) level and MN (manufacturer ID).

Viewing FIP Parameters for an FCoE Port

The FIP tab allows you to view and configure FCoE Initialization Protocol (FIP) parameters for an FCoE port.

To view FCoE Initialization Protocol (FIP) parameters for an FCoE port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port for which you want to view FIP information.
3. Select the **FIP** tab.

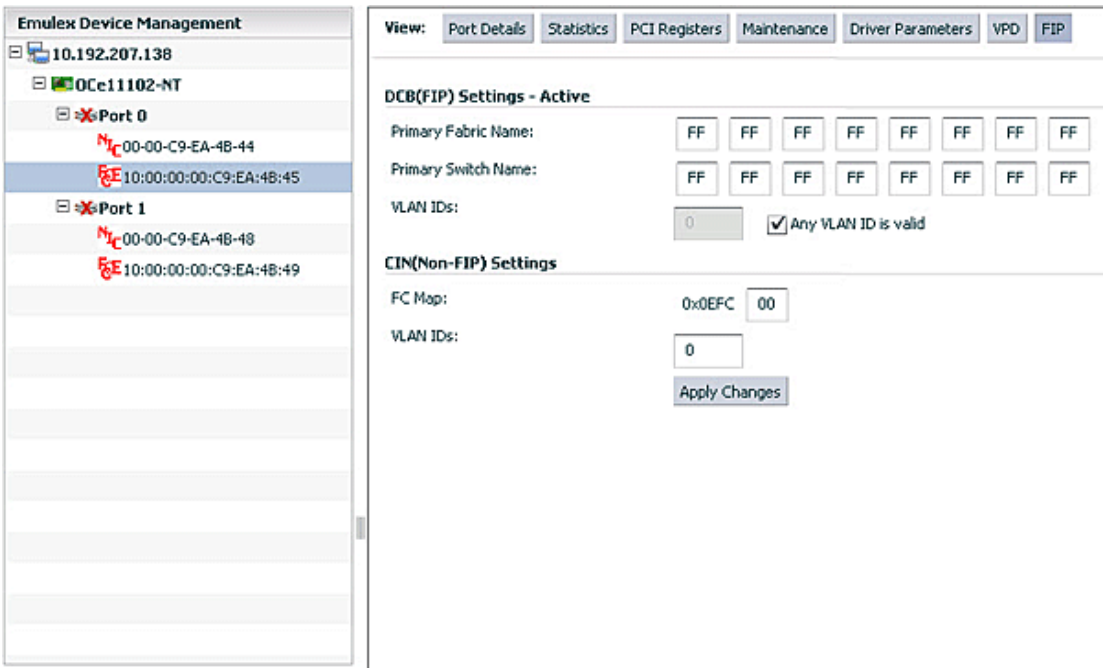

Figure 7-25 FCoE Port FIP Tab

FIP Tab Field Descriptions

DCB Settings Area

DCB settings are only applicable when the DCBX Mode in the DCB tab is set to DCB.

In Figure 7-25, the "DCB (FIP) Settings" area has "Active" in its title. This indicates that DCB (FIP) is the current DCBX mode (DCBX mode is set from the DCB tab). If CIN (Non-FIP) was the current DCBX mode, "Active" would be in the "CIN (Non-FIP) Settings" area.

- Primary Fabric Name – Indicates the FC fabric's WWN to which to connect. If the Primary Fabric Name is wild (all 0xFFs), then connection to any fabric name is allowed.

- Primary Switch Name – Indicates the FC switch's WWN to which to connect. If the Primary Switch Name is wild (all 0xFFs) then connection to any switch name is allowed.
- VLAN ID – Determines the VLAN where the adapter FCoE services are available. It can have a value from 0 to 4095 and supports wild card values if the Any VLAN ID is valid checkbox is selected.
- Any VLAN ID is valid checkbox – When checked, the VLAN ID field of the FCoE forwarder can be any valid value.

CIN Settings Area

- FC Map – Enter the bit value that completes the fabric-provided MAC address (FPMA).
- VLAN ID – Determines the VLAN where the adapter FCoE services are available. It can have a value from 0 to 4095.

FIP Tab Buttons

- Apply Changes – Click to set new FIP parameters.

Configuring FIP Parameters for an FCoE Adapter

The FIP tab enables you to configure FIP for FCoE adapters.

To configure FIP parameters for an FCoE port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FCoE port for which you want to configure FIP information.
3. Select the **FIP** tab (Figure 7-25 on page 95).
4. Set the parameters you want and click **Apply Changes**.

iSCSI Port

Viewing iSCSI Port Information

When you select an iSCSI port from the Emulex Device Management tree-view, the iSCSI Port Information tab shows general attributes associated with the selected iSCSI port.

To view general iSCSI port information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the iSCSI port for which you want to view information.

3. Select the **Port Information** tab.

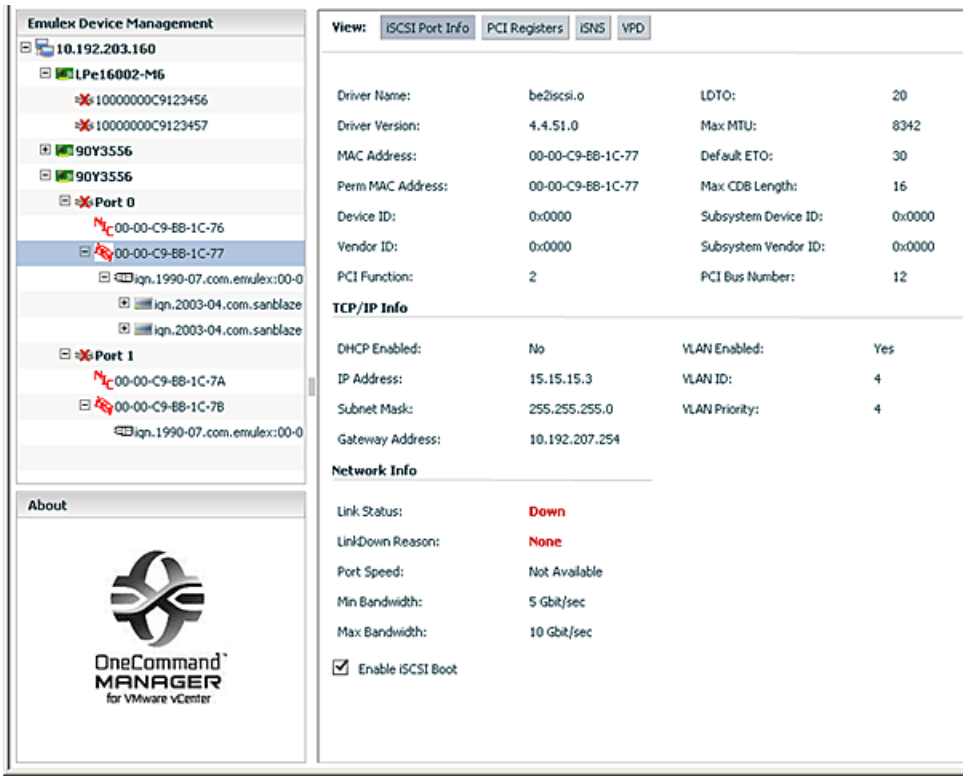

Figure 7-26 iSCSI Port Info Tab

iSCSI Port Info Tab Field Definitions

- Driver Name – The iSCSI driver file name.
- Driver Version – The iSCSI driver version.
- MAC Address – The iSCSI MAC address currently assigned to the port.
- Perm MAC Address – The original factory assigned iSCSI MAC address.
- Device ID – The PCI device ID assigned to the iSCSI function.
- Vendor ID – The PCI vendor ID assigned to the iSCSI function.
- PCI Function – The PCI function number assigned to the iSCSI function.
- LDTO – (Link Down Time Out) The amount of time in seconds that the iSCSI driver delays reporting a link down error to the operating system.
- Max MTU – The maximum transmission unit for Ethernet traffic.
- Default ETO – The default extended timeout.
- Max CDB Length – The maximum SCSI command descriptor block size.
- Subsystem Device ID – The PCI subsystem ID assigned to the iSCSI function.
- Subsys Vendor ID – The PCI subsystem vendor ID assigned to the iSCSI function.
- PCI Bus Number – The PCI bus number to which the port is mapped.

TCP/IP Info Area

- DHCP Enabled – The DHCP authentication status of the selected port.
- IP Address – The IP address for the NIC port.
- Subnet Mask – The subnet mask for the NIC port.
- Gateway Address – The gateway address for the NIC port.
- VLAN Enabled – The VLAN enabled state for the iSCSI interface.
- VLAN ID – The VLAN identifier to use, from 0 to 4094 (only valid when VLAN is enabled). A value of 0 indicates the VLAN is disabled.
- VLAN Priority – The VLAN priority for the iSCSI interface.

Network Info Area

- Link Status – The status of the link on the selected port.
- LinkDown Reason - The reason for the status of LinkDown on the selected port.
- Port Speed – The current port speed of the iSCSI port.
- Min Bandwidth – The minimum SoftCap bandwidth assigned.
- Max Bandwidth – The maximum SoftCap bandwidth assigned.

Enabling iSCSI Boot

You can enable iSCSI boot by checking **Enable iSCSI Boot**. To disable iSCSI boot, clear **Enable iSCSI Boot**.

Viewing PCI Registers for an iSCSI Port

The PCI Registers tab contains PCI information about the selected iSCSI port.

To view PCI registers for an iSCSI port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the iSCSI port for which you want to view PCI information.

3. Select the **PCI Registers** tab.

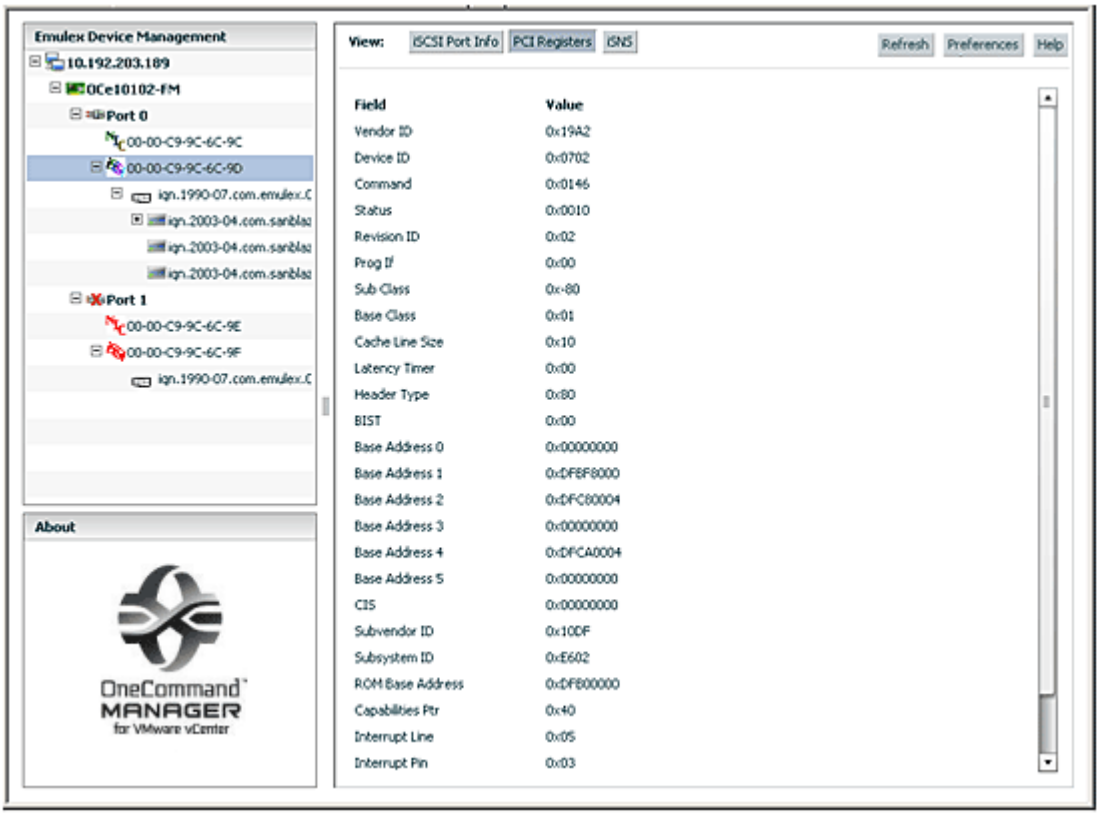

Figure 7-27 iSCSI Port, PCI Registers Tab

Viewing iSCSI iSNS Server Information

If the server has been set up as an Internet Storage Name Server (iSNS), the iSNS tab shows the IP address and TCP Port for the selected iSCSI port.

To view iSNS server information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the iSCSI port for which you want to view iSNS information.
3. Select the **iSNS** tab. .

Figure 7-28 iSCSI Port, iSNS Tab

iSNS Tab Field Definitions

iSNS Server

- IP Address - The IP address of the iSNS server
- TCP Port - The TCP port number for the connection to the iSNS server

Disabling the iSNS Server

To disable the iSNS server, click **Clear iSNS** on the **iSNS** tab.

Changing the iSNS Server

To change the iSNS server:

1. On the **iSNS** tab, click **Add/Update iSNS**. The Update iSNS Server dialog box is displayed.

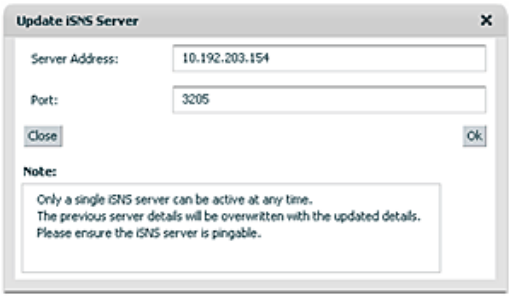

Figure 7-29 iSCSI Port, Update iSNS Server Dialog Box

2. Enter the new server address and Port ID.
3. Click **OK** to commit the new iSNS server. The new iSNS information is displayed on the iSNS tab. The new or updated iSNS server is also queried for iSCSI targets. Any discovered targets are added to the iSCSI Target Discovery tab.

Viewing iSCSI Initiator Statistics

The iSCSI Statistics tab shows information for the selected iSCSI port.

To view iSCSI initiator statistics:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the iSCSI initiator for which you want to view Statistic information.

3. Click the **iSCSI Statistics** tab.

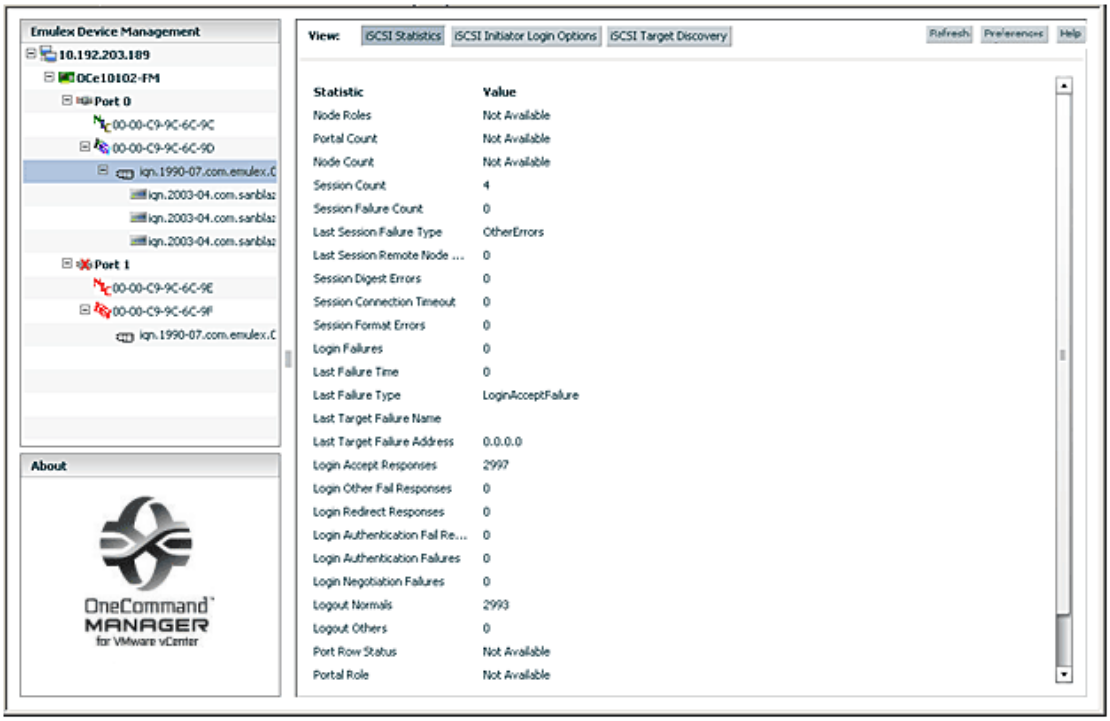

Figure 7-30 iSCSI Initiator, iSCSI Statistics Tab

iSCSI Statistics Tab Field Definitions

- Node Roles – The node role for this iSCSI initiator.
- Portal Count – The number of rows in the iscsiPortaltypeTable that are currently associated with this iSCSI instance.
- Node Count – The number of rows in the iscsiNodetypeTable that are currently associated with this iSCSI instance.
- Session Count – The number of rows in the iscsiSessiontypeTable that are currently associated with this iSCSI instance.
- Session Failure Count – The number of times a session belonging to this port has failed.
- Last Session Failure Type – The type of failure encountered in the last session failure.
- Last Session Remote Node – The iSCSI name of the remote node from the failed session.
- Session Digest Errors – The count of PDUs that were received on the session and contained header or data digest errors.
- Session Connection Timeout – The count of connections within this session that have been terminated due to a timeout.
- Session Format Errors – The count of sessions that failed due to receipt of an iSCSI protocol data unit (PDU) that contained a format error.
- Login Failures – The number of times a login from this initiator failed.

- Last Failure Time – The timestamp of the most recent failure of a login attempt from this initiator. A value of 0 indicates that no failures have occurred.
- Last Failure Type – A description of the last failure.
- Last Target Failure Name – The UTF-8 string name of the target that most recently failed a login request from this initiator.
- Last Target Failure Address – The Internet Network Address of the target that most recently failed.
- Login Accept Responses – The count of Login Response PDUs received by this initiator that were accepted.
- Login Other Fail Responses – The count of Login Response PDUs received by this initiator with any status code not counted by the other objects.
- Login Redirect Responses – The count of Login Response PDUs received by the initiator with status class of Redirection.
- Login Authentication Fail Responses – The count of Login Response PDUs with status class 0x201 Authentication Failed received by this initiator.
- Login Authentication Failures – The number of times the initiator has aborted a login because the target could not be authenticated.
- Login Negotiation Failures – The number of times the initiator has aborted a login because parameter negotiation with the target failed.
- Logout Normals – The count of Logout Command PDUs generated by this initiator with a normal reason code.
- Logout Others – The count of Logout Command PDUs generated by this initiator with any status code other than normal.
- Port Row Status – This field allows entries to be dynamically added and removed from this table via Simple Network Management Protocol (SNMP).
- Portal Role – The role of a portal. A portal can operate as a target portal and/or an initiator portal.

Viewing iSCSI Initiator Login Options

The iSCSI Initiator Login Options tab shows the set of login options used by the initiator when logging into a target.

To view iSCSI initiator login information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the iSCSI initiator for which you want to view initiator login information.

3. Click the **iSCSI Initiator Logon Options** tab.

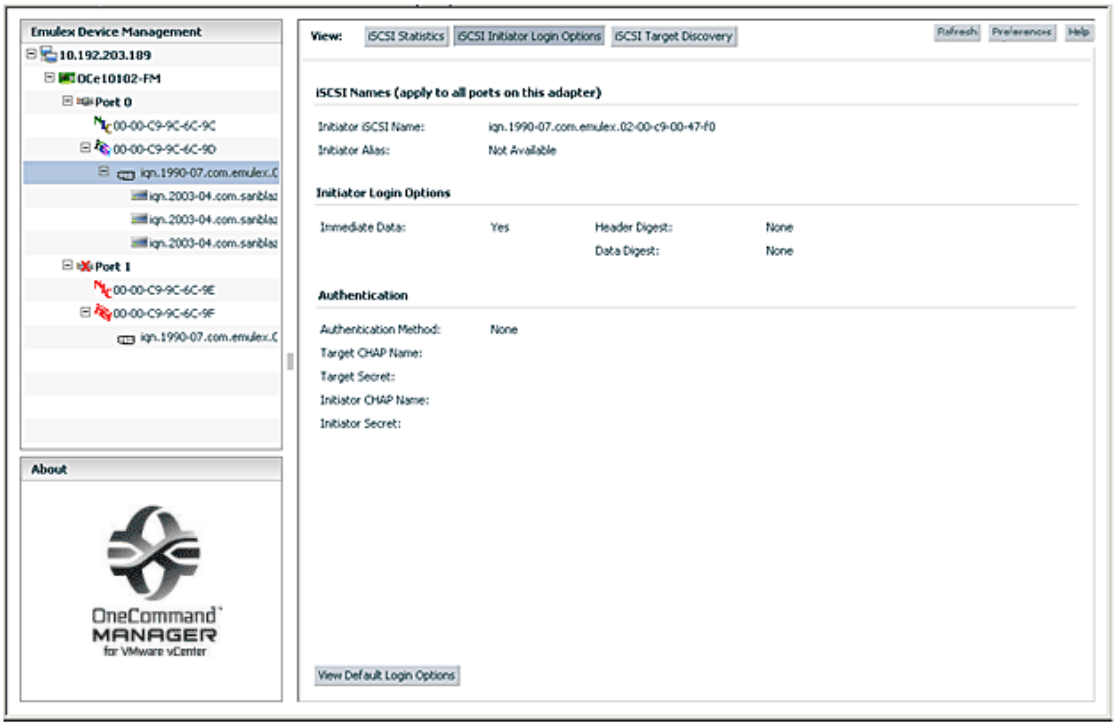

Figure 7-31 iSCSI Initiator Logon Options Tab

To view iSCSI initiator default login options:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the iSCSI initiator for which you want to view Initiator Login information.
3. Click the **iSCSI Initiator LoginOptions** tab.
4. Click **View Default Login.** The Initiator Default Login Options window appears.

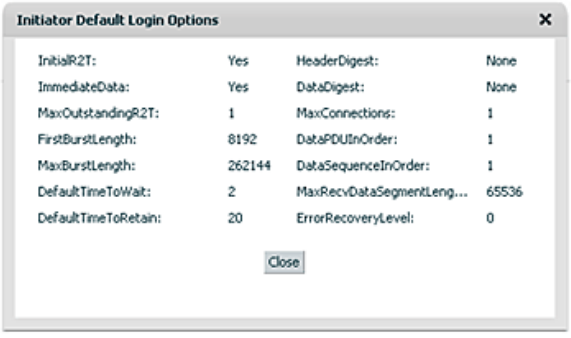

Figure 7-32 iSCSI Initiator Default Login Options Window

iSCSI Initiator Login Options Tab Field Definitions

iSCSI Names Area

- Initiator iSCSI Name – The iSCSI qualifier name of the initiator.
- Initiator Alias – An optional non-unique string used to identify the initiator.

Initiator Login Options Area

- Immediate Data – If set to **Yes**, the initiator can append unsolicited data to an iSCSI command.
- Header Digest – If set to **CRC32C**, the integrity of an iSCSI PDU's header segments are protected by a CRC32C checksum. If set to **None**, the PDU's header segments are not protected.
- Data Digest – If set to **CRC32C**, the integrity of an iSCSI PDU's data segment is protected by a CRC32C checksum. If set to **None**, the PDU's data segments are not protected.

Authentication Area

- Authentication Method
  - One-Way CHAP requires only that the authenticator (iSCSI target) authenticate the iSCSI initiator.
  - Mutual CHAP requires that both the iSCSI target and iSCSI initiator authenticate each other.
  - None indicates that no authentication is performed.
- Target CHAP Name – The iSCSI login name sent by the initiator to the target for authentication. This name is required for both One-Way CHAP and Mutual CHAP authentication. The target CHAP name is also known as the username.
- Target Secret – The iSCSI login secret sent by the initiator to the target for authentication. A target secret is required for both One-Way CHAP and Mutual CHAP authentication.
- Initiator CHAP Name – The iSCSI login name sent by the target to the initiator for authentication. The initiator CHAP name is only required for Mutual CHAP authentication. The initiator CHAP name is also known as the username.
- Initiator Secret – The iSCSI login secret sent by the target to the initiator for authentication. The initiator secret is only required for Mutual CHAP authentication.

iSCSI Initiator Login Options Tab Buttons

- View Default Login Options – Click to show the Initiator Default Login Options window.

Initiator Default Login Options Window Field Definitions

- InitialR2T – The initial request to transmit. When set to **Yes**, the initiator has to wait for the target to solicit SCSI data before sending it. When set to **No**, it allows the initiator to send a burst of unsolicited FirstBurstLength bytes.
- ImmediateData – If set to **Yes**, allows the initiator to append unsolicited data to a command.
- MaxOutstandingR2T – The maximum number of outstanding request to transmit's (R2T's) per task within a session, each up to MaxBurstLength bytes.
- FirstBurstLength – The maximum amount of unsolicited data (in bytes) the initiator can send to the target during the execution of a single iSCSI command.
- MaxBurstLength – The maximum amount of either unsolicited or solicited data the initiator may send in a single burst. Any amount of data exceeding this value must be explicitly solicited by the target.
- DefaultTimeToWait – The minimum time to wait, in seconds, before the initiator attempts to reconnect or reassign a connection (or task) that has been dropped after an unexpected connection termination or reset. The initiator and target negotiate to determine this value.
- DefaultTimeTo Retain – The maximum time, in seconds, to reassign a connection after the initial wait that is indicated in DefaultTime2Wait has elapsed. The initiator and target negotiate to determine this value.
- HeaderDigest – The valid values for this property are **CRC32C** or **None**. If set to CRC32C and the initiator is configured accordingly, the integrity of an iSCSI PDU's header segments is protected by a CRC32C checksum.
- DataDigest – The valid values for this property are **CRC32C** or **None**. If set to CRC32C and the initiator is configured accordingly, the integrity of an iSCSI PDU's data segment is protected by a CRC32C checksum.
- MaxConnections – The maximum number of connections to targets that are allowed within a single session.
- DataPPDUInOrder – The order of data PDUs within a sequence.
- DataSequenceInOrder – The order between sequences.
- MaxRecDataSegmentLength – The maximum data segment length in bytes an initiator or target can receive in an iSCSI PDU.
- ErrorRecoveryLevel – The operational ErrorRecoveryLevel for the session. 0 indicates recovery only by session restart. **1** indicates recovery by reissuing commands, data, or status. **2** indicates connection failure recovery.

Initiator Default Login Options Window Buttons

- Close – Click to close the window.

Viewing iSCSI Target Discovery Information

The iSCSI Target Discovery tab shows all currently discovered targets. Targets on this tab come from one of three sources:

- The target was added manually.
- The target was discovered via a target portal.
- The target was found through an iSNS server query.

To view iSCSI target discovery information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the iSCSI initiator for which you want to view target discovery information.
3. Click the **iSCSI Target Discovery** tab.

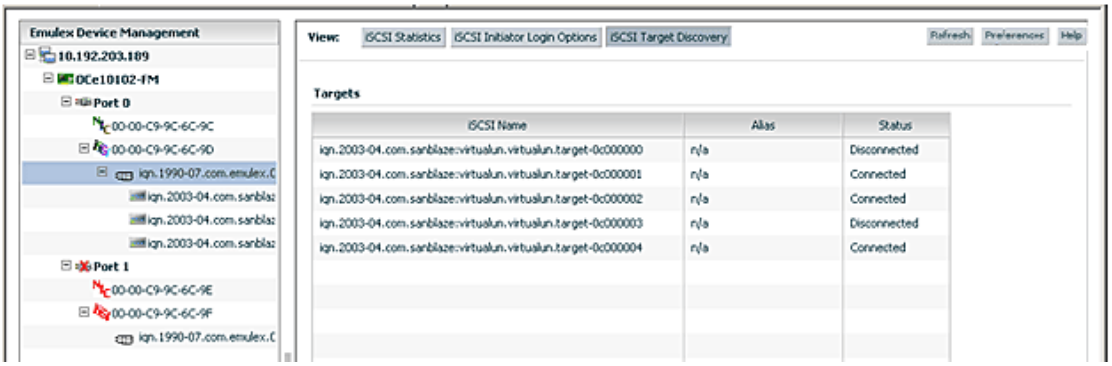

Figure 7-33 iSCSI Target Discovery Tab

iSCSI Target Discovery Tab Field Definitions

- iSCSI Name – The iSCSI name assigned to the target.
- Alias – The iSCSI alias assigned to the target. This is assigned at the target portal, not by OCM for VMware vCenter.
- Status – The status field indicates if the target is connected or disconnected.

Viewing iSCSI Target Information

The iSCSI Target Information tab shows information about the target. You can also view information about a target session.

To view iSCSI target discovery information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the iSCSI target for which you want to view target discovery information.

The **iSCSI Target Information** tab is displayed.

Figure 7-34 iSCSI Target Information Tab

iSCSI Target Information Tab Field Definitions

- Target iSCSI Name – The iSCSI name assigned to the target.
- Target Alias – The iSCSI alias assigned to the target. This is assigned at the target portal, not by OCM for VMware vCenter.
- ETO – (Extended Timeout Value) The ETO for the target. The driver ensures that I/Os are not "timed out" until this time has expired (from the time the target stopped responding).

iSCSI Target Information Tab Buttons

The Sessions button opens the Target Sessions window.

Viewing Target Session Information

There may be multiple active sessions for a connected target.

To view iSCSI target session information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the iSCSI target for which you want to view target discovery information. The **iSCSI Target Information** tab is displayed.

3. Click **Sessions**. You can toggle between sessions by using the drop-down list in the upper left corner of the window.

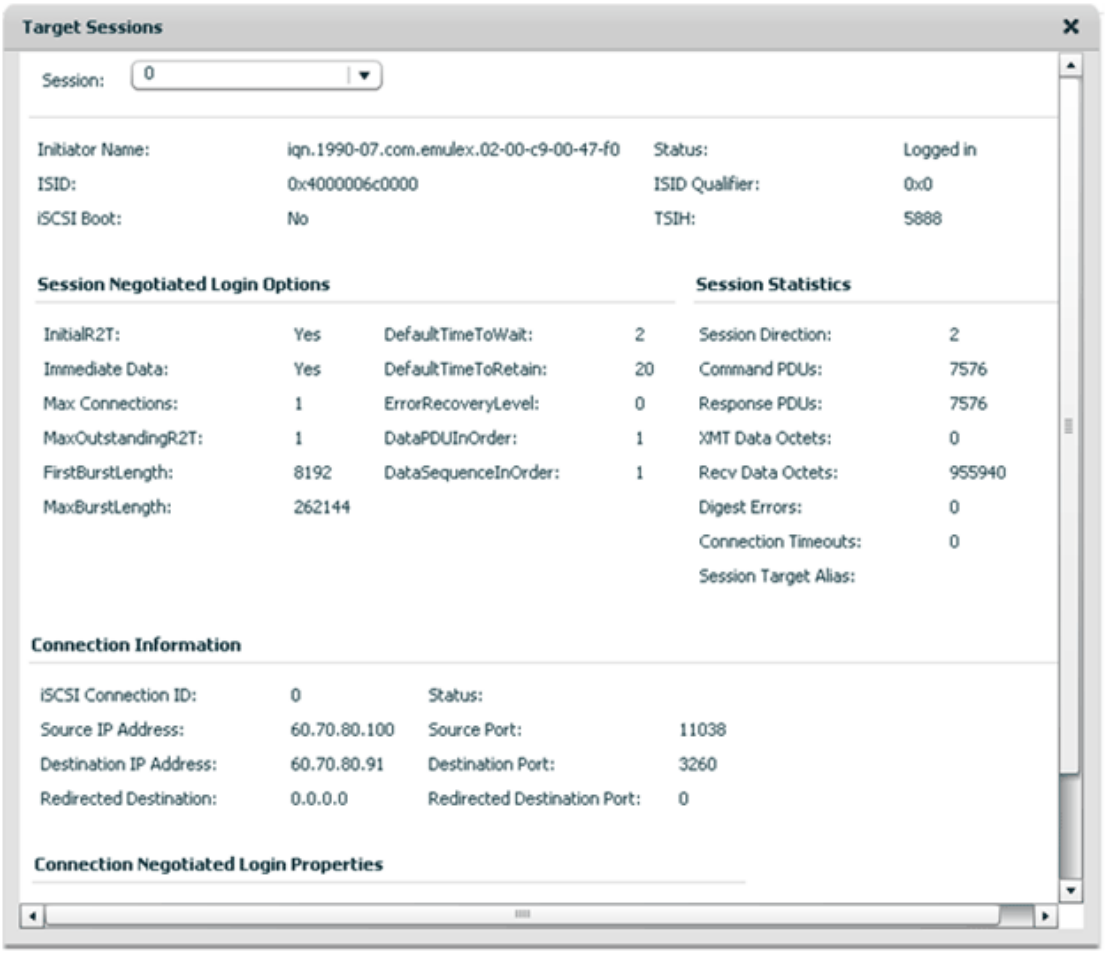

Figure 7-35 iSCSI Target Sessions Window

Target Sessions Window Field Definitions

- Initiator Name – The initiator named used to log into the session.
- ISID – The initiator session identifier (unique for each session).
- iSCSI Boot – "Yes" indicates a boot session. Logout is not possible from a boot session.
- Status – The session status (logged in, login in progress, login failed, recovery, unknown).
- ISID Qualifier – The first two bytes of the ISID (unique for each session).
- TSIH – The target session identifier handle. A tag generated by an iSCSI target to identify an iSCSI session with a specific iSCSI initiator.

Session Negotiated Login Options Area

- InitialR2T – The initial request to transmit. When set to **Yes**, the initiator has to wait for the target to solicit SCSI data before sending it. When set to **No**, it allows the initiator to send a burst of unsolicited FirstBurstLength bytes.
- Immediate Data – When set to **Yes**, it allows the initiator to append unsolicited data to a command.
- MaxConnections – The maximum number of connections to targets that are allowed within a single session.
- MaxOutstandingR2T – The maximum number of outstanding request to transmits (R2Ts) per task within a session, each up to MaxBurstLength bytes.
- FirstBurstLength – The maximum amount of unsolicited data (in bytes) the initiator can send to the target during the execution of a single iSCSI command.
- MaxBurstLength – The maximum amount of either unsolicited or solicited data the initiator may send in a single burst. Any amount of data exceeding this value must be explicitly solicited by the target.
- DefaultTimeToWait – The minimum time to wait, in seconds, before the initiator attempts to reconnect or reassign a connection (or task) that has been dropped after an unexpected connection termination or reset. The initiator and target negotiate to determine this value.
- DefaultTimeToRetain – The maximum time, in seconds, to reassign a connection after the initial wait that is indicated in DefaultTimeToWait has elapsed. The initiator and target negotiate to determine this value.
- ErrorRecoveryLevel – The operational ErrorRecoveryLevel for the session. **0** indicates recovery only by session restart. **1** indicates recovery by reissuing commands, data, or status. **2** indicates connection failure recovery.
- DataPDUInOrder – The order of PDUs within a sequence.
- DataSequenceInOrder – The order between sequences.

Session Statistics Area

- Session Direction – The direction of iSCSI session. Valid values are InboundSession and OutboundSession.
- Cmd PDUs – The count of Command PDUs transferred on this session.
- Response PDUs – The count of Response PDUs transferred on this session.
- Xmt Data Octets – The count of data octets that were transmitted by the local iSCSI node on this session.
- Recv Data Octets – The count of data octets that were received by the local iSCSI node on this session.
- Digest Errors – The count of PDUs which were received on the session and contained header or data digest errors.
- Connection Timeouts – The count of connections within this session which have been terminated due to a timeout.
- Session Target Alias – The target alias for the session.

Connection Information Area

- iSCSI Connection ID – The iSCSI Connection ID assigned to the connection.
- Status – The status of the connection. Valid values are connected and unknown.
- Source IP Address – The source IP address for the connection.
- Source Port – The source TCP port number for the connection.
- Destination IP Address – The destination IP address for the connection.
- Destination Port – The destination TCP port number for the connection.
- Redirected Destination – The redirected IP address for the target.
- Redirected Destination Port – The redirected port number for the target.

Connection Negotiated Login Properties Area

- Authentication Method – The authentication method used for connection. Valid values are **None**, **Mutual CHAP** and **One-Way CHAP**.
- MaxRecdDataSegmentLength – The maximum data segment length in bytes an initiator or target can receive in an iSCSI PDU.
- Header Digest – When set to **CRC32C**, the integrity of an iSCSI PDU's header segments is protected by a CRC32C checksum.
- Data Digest – When set to **CRC32C**, the integrity of an iSCSI PDU's data segments is protected by a CRC32C checksum.
- TCPMSS – The maximum segment size for this connection. The driver uses this to determine the size of the data PDU whenever it is required to transmit the entire PDU with a single iSCSI header.

Configuring iSNS for iSCSI Target Discovery

An Internet Storage Name Server (iSNS) maintains a database of storage network elements that can be queried by other hosts within the SAN. iSCSI storage devices in particular can register targets with the iSNS for efficient discovery by iSCSI clients. Use the **iSCSI SNS** tab to configure the iSNS server or to discover the server. For more information about the iSCSI SNS tab, refer to "Viewing iSCSI iSNS Server Information" on page 99.

Viewing iSCSI LUN Information

The iSCSI LUN Info tab shows basic vendor, product and LUN masking information.

To view iSCSI LUN information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.

2. In the Emulex Device Management tree-view, select the LUN for which you want to view information. The LUN Info tab is displayed.

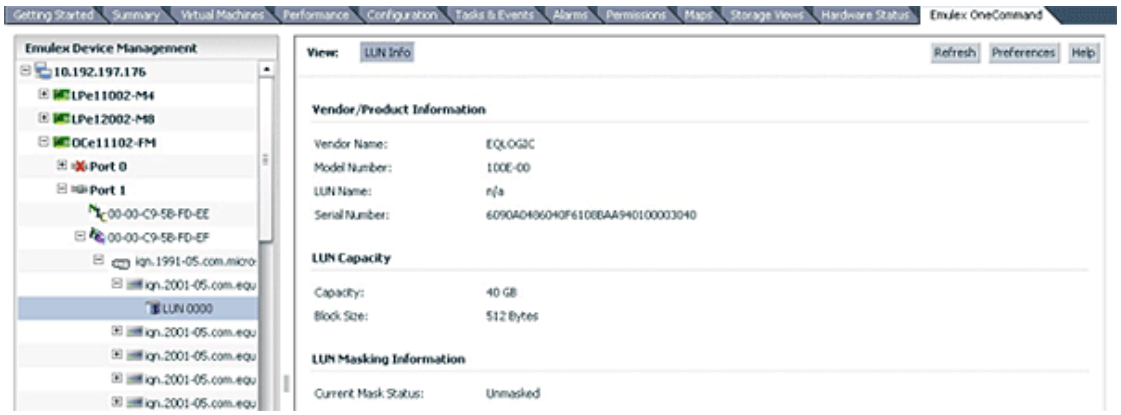

Figure 7-36 iSCSI LUN Info Tab

iSCSI LUN Info Tab Field Definitions

Vendor/Product Information Area

- Vendor Name – The name of the vendor of the LUN.
- Model Number – The vendor's model number for the LUN.
- LUN Name – The name of the LUN.
- Serial Number – The vendor's serial number for the LUN.

LUN Capacity Area

- Capacity – The capacity of the LUN, in megabytes.
- Block Size – The length of a logical unit block in bytes.

LUN Masking Information Area

The Current Mask Status field indicates possible LUN mask states as masked or unmasked.

Viewing iSCSI Port Vital Product Data (VPD)

The VPD tab shows vital product data (if available) for the selected iSCSI port such as the product name, part number, serial number and so on.

To view VPD information of an iSCSI port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the iSCSI port for which you want to view VPD information.

3. Select the **VPD** tab.

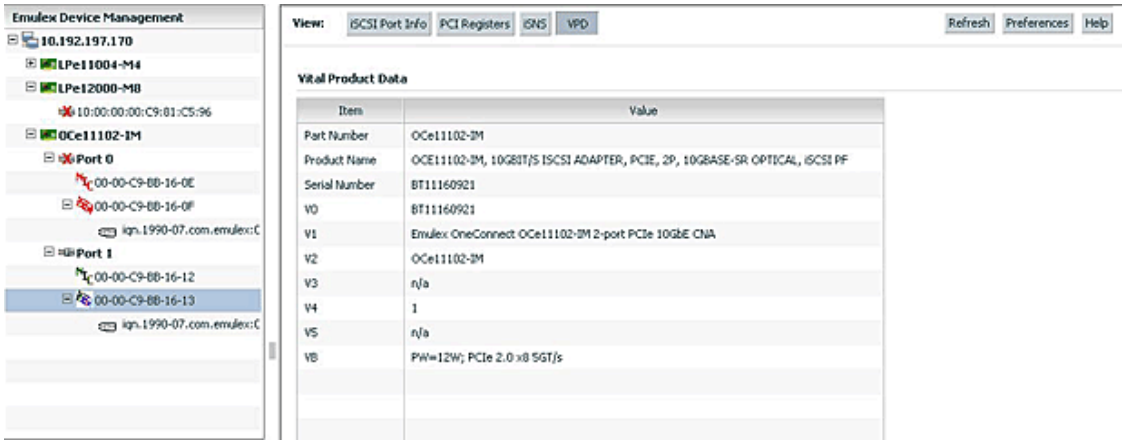

Figure 7-37 iSCSI Port VPD Tab

VPD Table Definitions

- Product Name – The product information about a selected adapter port.
- Part Number – The adapter's part number.
- Serial Number – The adapter's serial number.
- VO – Vendor unique data. “V” indicates a vendor-specific field. An adapter may have none, one or more of these fields defined. Valid values for this field are “VO” (the letter “O”, not the number zero) and “Vx” (where “x” is a number).

Note: Some adapters may show additional VPD information such as engineering change (EC) level and MN (manufacturer ID).

NIC Port

Viewing NIC Port Information

When you select a NIC port from the Emulex Device Management tree-view, the NIC Port Information tab shows general attributes associated with the selected NIC port. If the adapter supports vNIC, vNIC data is also displayed.

Note: NIC ports not only exist on NIC-only adapters, but also exist on FCoE and iSCSI adapters.

Note: vNIC is supported only on IBM virtual fabric adapters. For specific information as to whether it is supported on a specific adapter, refer to the release notes that are available on the IBM adapter pages on the Emulex website.

To view general NIC port information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the NIC port for which you want to view information.

   Note: In Virtual Ports view, NIC ports appear only on FCoE adapters. They do not appear on NIC-only adapters.

3. Select the **Port Information** tab.

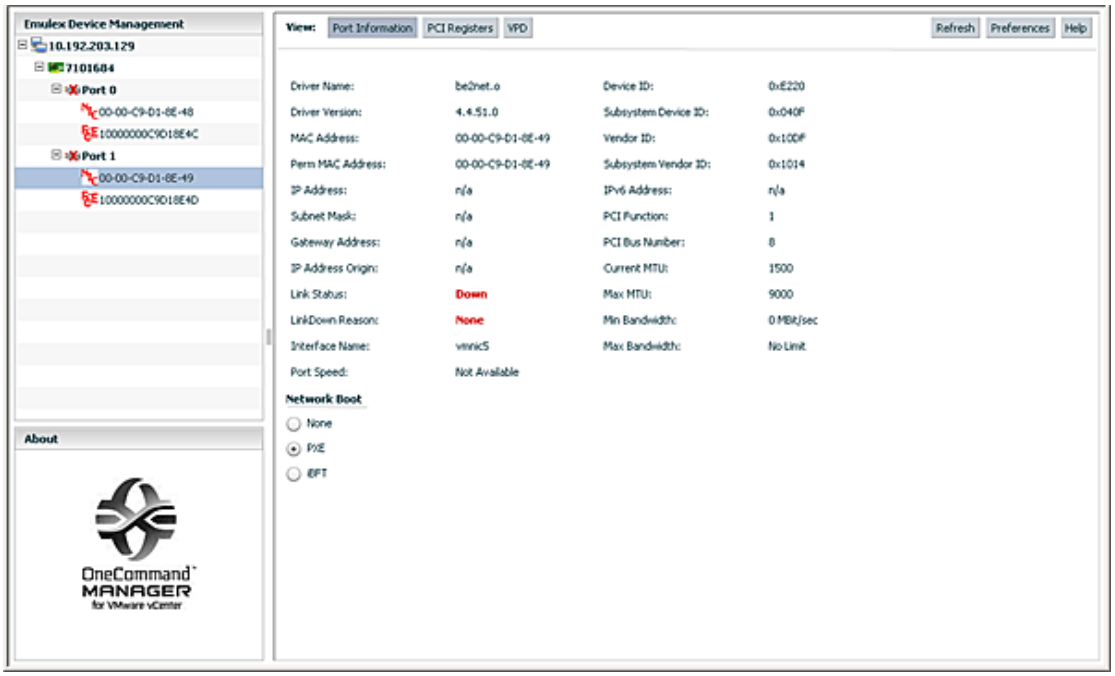

Figure 7-38 NIC Port Information Tab

NIC Port Information Tab Field Definitions

- Driver Name – The NIC driver file name.
- Driver Version – The NIC driver version.
- MAC Address – The NIC MAC address currently assigned to the port.
- Perm MAC Address – The original factory assigned NIC MAC address.
- IP Address – The IP address for the NIC port.
- Subnet Mask – The subnet mask for the NIC port.
- Gateway Address – The gateway address for the NIC port.
- IP Address Origin – The origin of the IP address (DHCP or static).
- Link Status – The link status is always displayed as “n/a” (not available).
- LinkDown Reason – The reason for the status of LinkDown on the selected port.
- Interface Name – The interface assigned to this port by the host operating system.

- Port Speed – The current port speed of the NIC port.
- Device ID – The PCI device ID assigned to the NIC function.
- Subsys Device ID – The PCI subsystem ID assigned to the NIC function.
- Vendor ID – The PCI vendor ID assigned to the NIC function.
- Subsys Vendor ID – The PCI subsystem vendor ID assigned to the NIC function.
- IPv6 Address – The Internet Protocol Version 6 address, if applicable.
- PCI Function – The PCI function number assigned to the NIC function.
- PCI Bus Number – The PCI bus number to which the port is mapped.
- Current MTU – The current transmission unit for Ethernet traffic.
- Max MTU – The maximum transmission unit for Ethernet traffic.
- Min Bandwidth – The minimum SoftCap bandwidth assigned.
- Max Bandwidth – The maximum SoftCap bandwidth assigned.

Network Boot

To boot from the iSCSI SAN, the host must have an iSCSI boot capable network adapter that supports the iSCSI Boot Firmware Table (iBFT) format. The iBFT is a method of communicating parameters about the iSCSI boot device to an operating system. To boot the host from the Network interface, use preboot execution environment (PXE).

NIC functions include iBFT boot configuration and PXE boot configuration which are displayed under the Network Boot section of the NIC Port Information tab. If the currently selected NIC port does not support network boot, the Network Boot section is not displayed.

Considerations when using Network Boot

- The iBFT boot option is only available for the UCNA 16 Gb family of adapters. LP, LPe and OCe10102 adapters do not support the PXE boot option.
- Network boot options are only available on ports with a PCI function of 0 or 1.
- Network Boot is supported by CIM Provider 3.6.12 and above.

To select a network boot configuration on the selected port, click the desired option from the Network Boot section:

- iBFT – to boot from an iSCSI SAN using the iSCSI Boot Firmware Table (iBFT) format.
- PXE – to boot from a network interface using a preboot execution environment (PXE).
- None – to disable the network boot functions.

Viewing PCI Registers for a NIC Port

The PCI Registers tab contains PCI information about the selected NIC function.

To view a NIC port's PCI registers:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the NIC port for which you want to view PCI information.
3. Select the **PCI Registers** tab.

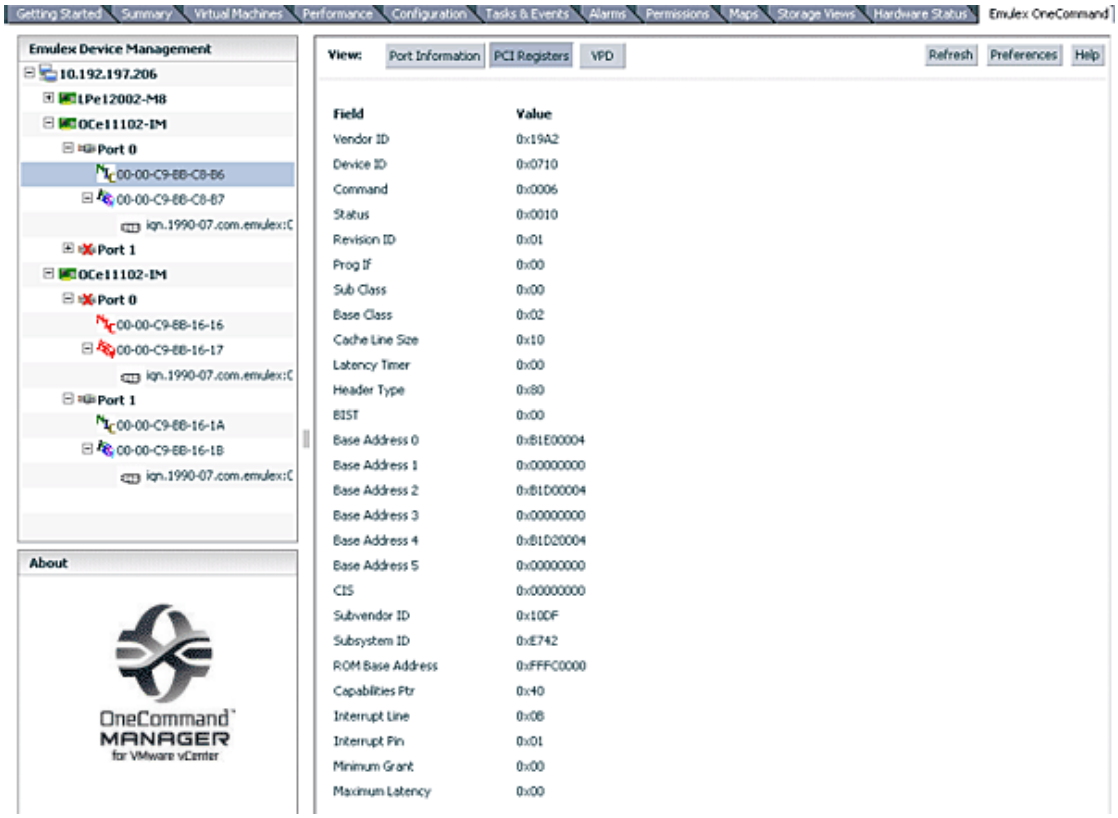

Figure 7-39 NIC Port PCI Registers Tab

Viewing NIC Port Vital Product Data (VPD)

The VPD tab shows vital product data (if available) for the selected NIC port such as the product name, part number, and serial number for example.

To view VPD information of an NIC port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the NIC port for which you want to view VPD information.
3. Select the **VPD** tab.

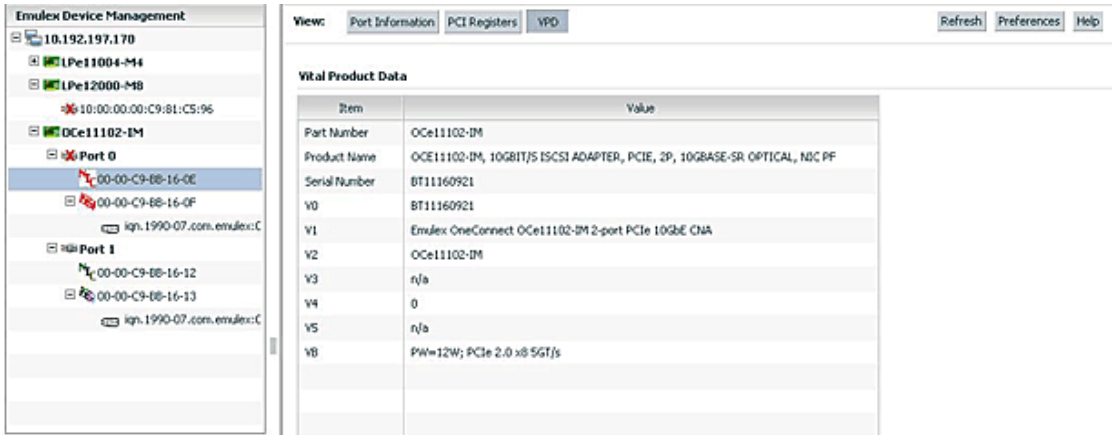

Figure 7-40 NIC Port VPD Tab

VPD Table Definitions

- Product Name – The product information about a selected adapter port.
- Part Number – The adapter's part number.
- Serial Number – The adapter's serial number.
- VO – Vendor unique data. “V” indicates a vendor-specific field. An adapter may have none, one or more of these fields defined. Valid values for this field are “VO” (the letter “O”, not the number zero) and “Vx” (where “x” is a number).

Note: Some adapters may show additional VPD information such as engineering change (EC) level and MN (manufacturer ID).

8. OneConnect Adapter Port Management

Viewing and Installing Licenses for OneConnect Adapters

Viewing Available Licenses

OCM for VMware vCenter allows you to view available licenses and install licenses to enable FCoE personalities on OneConnect adapters without having to rewire the adapter.

To view available licenses for a OneConnect adapter:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select a OneConnect adapter whose licenses you want to view.
3. Select the **Adapter Information** tab.

   In the License Features Area, the license information is displayed. The table shows the available licenses and whether its licensed or not..

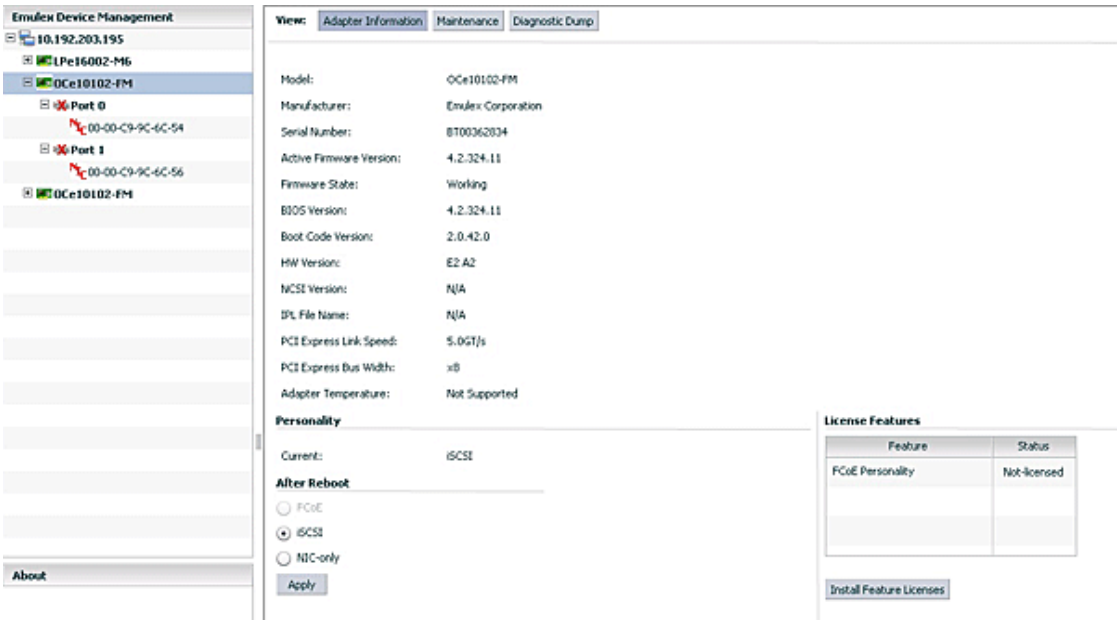

Figure 8-1 License Features Area

4. Click "Install Feature Licenses" to update a new license set.

Note: Contact vendor for the required license file.

Installing Licenses

To install licenses for a OneConnect adapter:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the OneConnect adapter for which you want to install licenses.
3. Select the **Adapter Information tab** (Figure 6-2, OneConnect Adapter Information Tab, on page 61).
4. Click **Install Feature Licenses**. The Install Feature Licenses dialog box shows the Adapter ID.

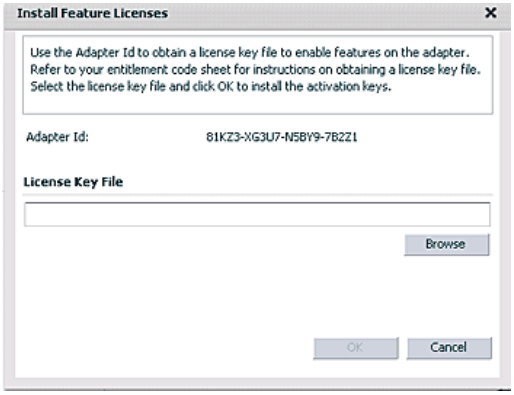
Install Feature Licenses
Use the Adapter Id to obtain a license key file to enable features on the adapter.
Refer to your entitlement code sheet for instructions on obtaining a license key file.
Select the license key file and click OK to install the activation keys.
Adapter Id:
81KZ3-XG3U7-N5BY9-7B2Z1
License Key File
Browse
OK
Cancel

Figure 8-2 Install Feature Licenses Dialog Box

5. Following the instructions you received with the Entitlement Code, go to the License website and enter the Adapter ID and Entitlement Code.
6. When the Adapter ID and Entitlement Code are successfully validated, download a License Key File containing one or more activation keys.
7. In the Install Feature Licenses dialog box, click **Browse**. The file selection dialog box appears. Select the file you want to use and click **OK**.
8. A dialog box appears confirming that you want to install the licenses. Click **Yes**.
9. A dialog box appears notifying you that the installation was successful or why it failed. Click **OK**.

Changing Personalities on OneConnect Adapters

OCM for VMware vCenter allows you to change the personality running on the adapter. There are three personalities: NIC-Only, FCoE, and iSCSI.

In some cases the adapters come pre-configured to support multiple personalities. In other cases an enablement license must be installed before the adapter can support multiple personalities. Refer to “Installing Licenses” on page 118 for more information.

To change the personality of a OneConnect adapter:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select a OneConnect adapter whose personality you want to change.
3. Select the **Adapter Information** tab (Figure 6-2). From the Personality area of the Adapter Information tab, select the personality type you want and click **Apply**.

   Note: If the adapter does not support personalities, personality controls are not displayed. If the adapter does not support a particular personality type that control is disabled.

4. Reboot the host for the personality change to take effect.

Viewing and Updating OneConnect Adapter Firmware Information

Unlike LightPulse adapters, OneConnect adapter firmware is maintained on an adapter-specific basis instead of port-specific basis.

Viewing OneConnect Adapter Firmware Information

To view firmware information for a OneConnect adapter:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the OneConnect adapter for which you want to view firmware information.
3. Select the **Maintenance** tab. The Maintenance tab enables you to view and update firmware on a Oneconnect adapter in a specific host.

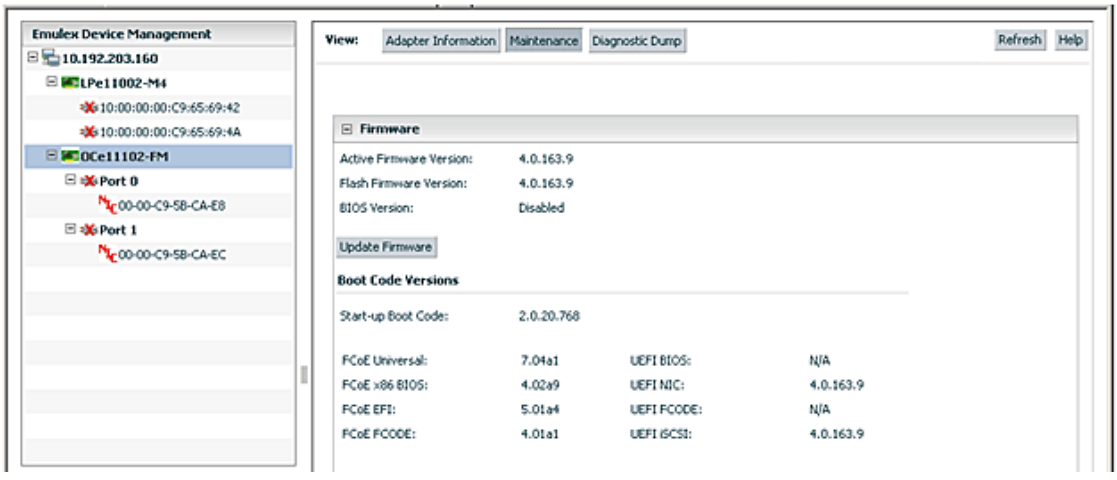

Figure 8-3 OneConnect Adapter Maintenance Tab

Maintenance Tab Field Definitions

- Active Firmware Version – The firmware version currently being used by the adapter.
- Flash Firmware Version – The flash firmware version flashed on the adapter.
- BIOS Version – The version of the BIOS currently being used by the adapter.
- Boot Code Versions – The adapter's boot code versions currently being used by the adapter.

Note: The Start-up Boot Code is the boot code that boots the adapter. It has no relation to the FC, or PXE boot code versions.

Maintenance Tab Button

The Update Firmware button updates firmware on the selected adapter. Refer to "Updating Firmware for OneConnect Adapters" on page 120 for more information.

Updating Firmware for OneConnect Adapters

For OneConnect adapters, you update the firmware for the entire adapter and not for individual ports.

To update firmware for a OneConnect adapter:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the OneConnect adapter for which you want to update firmware information.
3. Select the **Maintenance** tab (Figure 8-3) and click **Update Firmware**. If a warning message appears, click **Yes**. The Firmware Download dialog box appears.

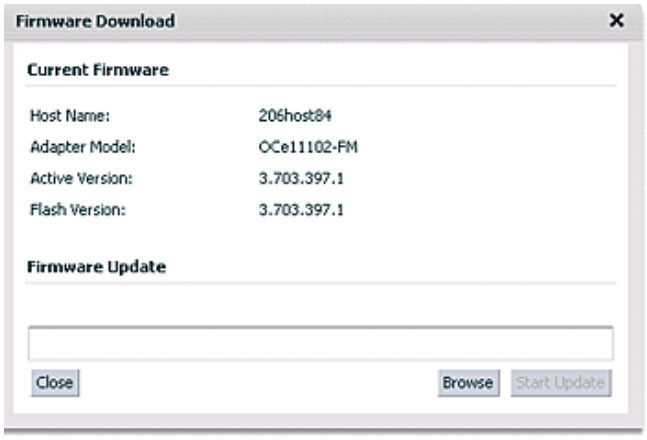

Figure 8-4 Firmware Download Dialog Box

4. Click **Browse** and navigate to the unzipped, extracted image file you want to download.
5. On the browse window, select the file and click **OK**.
6. Click Start **Update**.

When the update begins, the Jobs window is displayed (Figure 5-6). A status message in the Active Job list shows the progress of the download. The ports on which the firmware is being downloaded have the status “Job is in progress”, the other ports display the “Waiting in queue to start” status. When the download has completed, the entry moves to the Completed Jobs window. The status message field in the Completed Jobs window shows the status of the completed job.

You can monitor jobs submitted through the OCM for VMware vCenter Command Line Interface. If you start a firmware update and log out from the vSphere console before the firmware update is completed, all pending jobs fail. The firmware update progresses in the background until all the jobs are completed. During this period, you can still browse through the other tabs. The firmware update job submitted can also be tracked in the VMware tasks window.

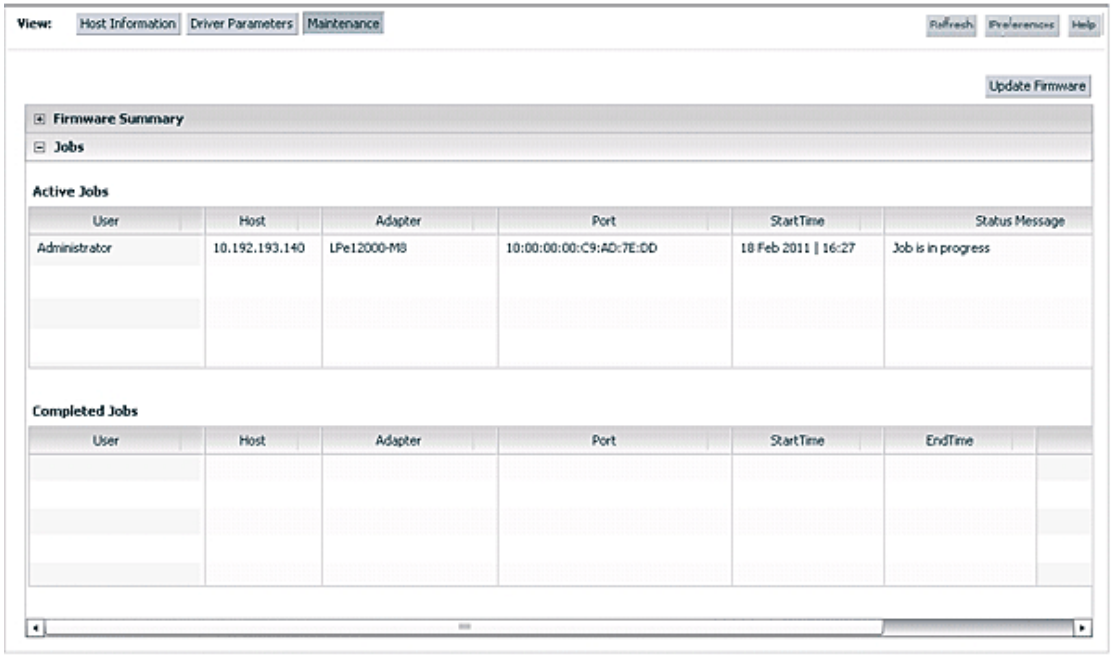

Figure 8-5 Jobs Window

7. Open **Firmware Summary** and the updated firmware information for the selected adapter is displayed.

Viewing and Configuring Physical Ports for OneConnect Adapters

Viewing Physical Ports for OneConnect Adapters

The Physical Port Info tab shows general information about the PCI functions under the selected physical port and the current physical port status.

To view physical port information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select a OneConnect adapter physical port for which you want to view information.
3. Select the **Physical Port Info** tab.

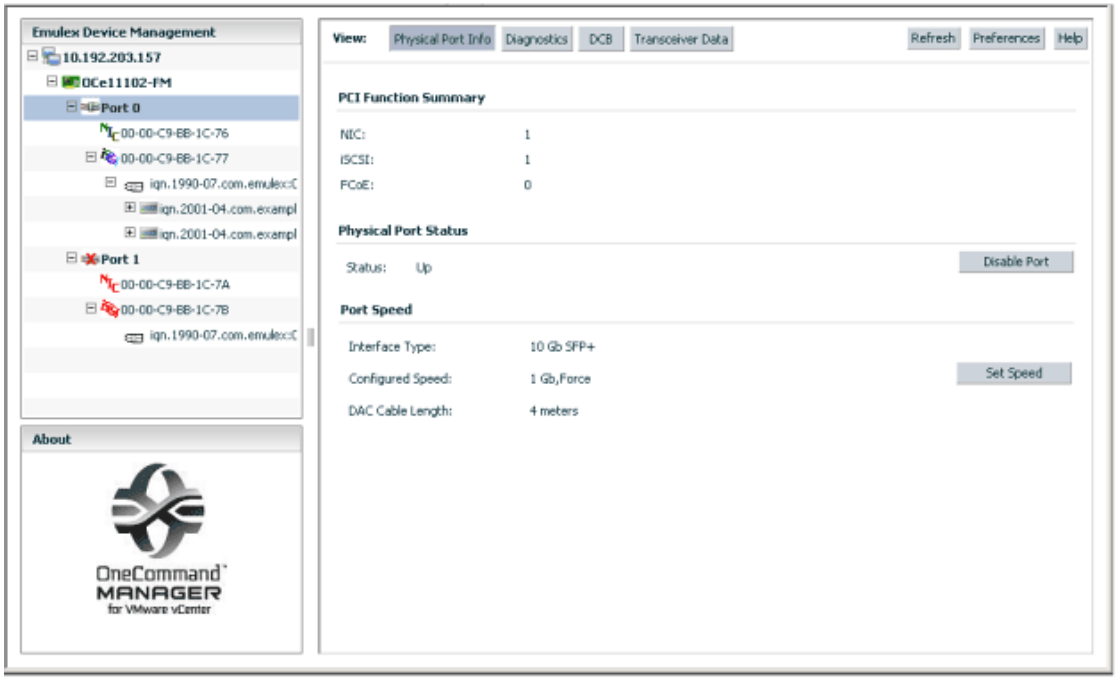

Figure 8-6 OneConnect OCe11XXX Series Adapter Physical Port Info Tab

Physical Port Info Tab Field Definitions

PCI Function Summary Area

- NIC – The number of NIC functions running on the adapter.
- iSCSI – The number of iSCSI functions running on the adapter.
- FCoE – The number of FCoE functions running on the adapter.

Physical Port Status Area

- Status:
  - Down – Not operational
  - Up – Operational
  - n/a – Not available

Port Speed Area

- Interface Type – The module type and speed.
- Configured Speed – The configured port mode (default, force or auto-negotiate) and speed.
- DAC Cable Length – The digital audio cable length in meters.

Configuring a Physical Port for OneConnect Adapters

Enabling or Disabling a Physical Port

To change the physical port status, click **Enable/Disable**. This button toggles between Disable and Enable, depending upon the current status of the physical port.

Changing a Physical Port's Speed

The Change Port Speed dialog box allows you to configure port mode, speed and DAC cable length.

To configure port speed for a OneConnect physical port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select a OneConnect adapter physical port whose port speed you want to configure.
3. Select the **Physical Port Info** tab.
4. Click **Set Speed**. The Change Port Speed dialog box appears.
5. As applicable, make mode, speed and DAC cable length changes.
6. Click **OK**.

Figure 8-7 Change Port Speed Dialog Box

Change Port Speed Field Definitions

- Mode:
  - Default – Speed and DAC Cable Length fields are not active.
  - Force
  - Auto-Negotiate
- Speed – This field is active if the mode is set to Force or Auto-Negotiate.
  - If the mode is set to Force and depending upon the interface type, you can set the speed to one of the following:
    - 10 Mb
    - 100 Mb
    - 1 Gb/s
    - 10 Gb/s
  - If the mode set to Auto-Negotiate, and depending upon the interface type, you can set the speed setting to a single or multiple speed value.
  - Single speed values
    - 10 Mb
    - 100 Mb
    - 1 Gb/s
    - 10 Gb/s
  - Multiple speed values combinations
    - 10 Gb/s and 1 Gb/s
    - 1 Gb/s and 100 Mb
    - 1 Gb/s, 100 Mb and 10 Mb
    - 100 Mb and 10 Mb
- DAC Cable Length – This field is only required if the Force mode is selected and the speed is set to 10 Gb/s. Select from 1 to 10 meters. This field is not active in all other cases.

Viewing Physical Data for OneConnect 10GBaseT Series Adapters

The PHY Data tab shows physical data information for OneConnect 10GBaseT series adapters.

To view physical data information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select a OneConnect adapter physical port for which you want to view physical data information.
3. Select the **PHY Data** tab

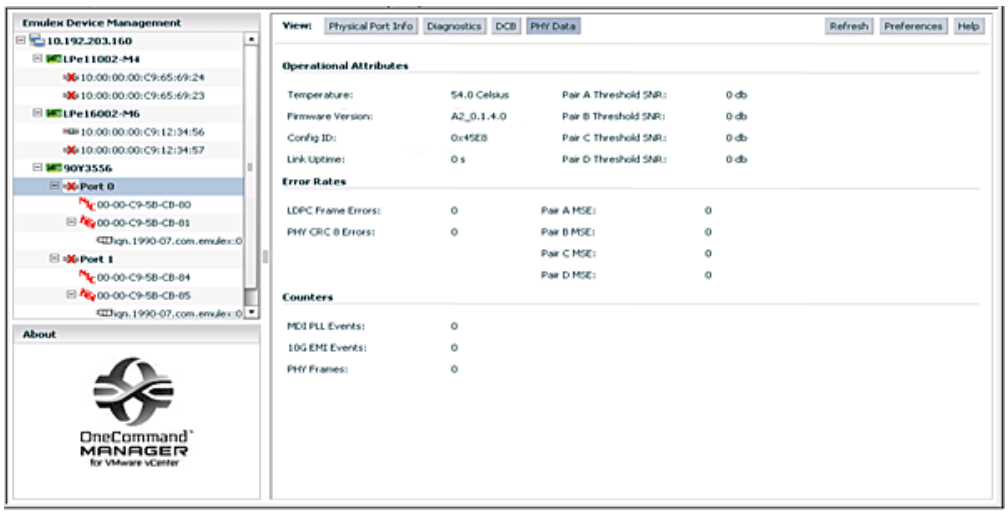

Figure 8-8 OneConnect Adapter PHY Data Tab

PHY Data Tab Field Definitions

Operational Attributes Area

- Temperature – The internally measured adapter temperature.
- Firmware – The version of Emulex firmware currently active on the adapter port.
- Config ID – The Cyclic Redundancy Check configuration details.
- Link Uptime – The time in seconds that the link has been up. Pair A/B/C/D Signal-to-Noise (SNR) Margin – The port's average SNR margin for twisted pairs A, B, C & D.

Error Rates Area

- LDPC Frame Errors – The number of low-density parity check (LDPC) frame errors.
- PHY CRC8 Errors – The number of physical cyclic redundancy check (CRC8) errors.
- Pair A/B/C/D Mean Squared Error (MSE) – The port's average Mean Square Error relative to the transmitted code words for twisted pairs A, B, C & D.

Counters Area

- MDI PLL Events – The number of Medium Dependent Interface (MDI) phase lock loop (PLL) events.
- 10G EMI Events – The 10G EMI Event counter tracks the number of single-tone interference detected by CNA's MDI signals. This counter holds its value at MDI link down and self-clears at the next link up.

- PHY Frames – Counts the number of physical frames transmitted and received since the MDI link has been established. This counter holds its value at MDI link down and self-clears at the next link up.

Viewing Port Transceiver for a OneConnect Adapter

The Transceiver Data tab enables you to view transceiver information such as vendor name, serial number, part number, and diagnostic data for example. If the adapter/transceiver does not support some or all of the transceiver data, the fields show N/A.

To view transceiver information:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the physical port whose transceiver information you want to view.
3. Select the **Transceiver Data** tab.

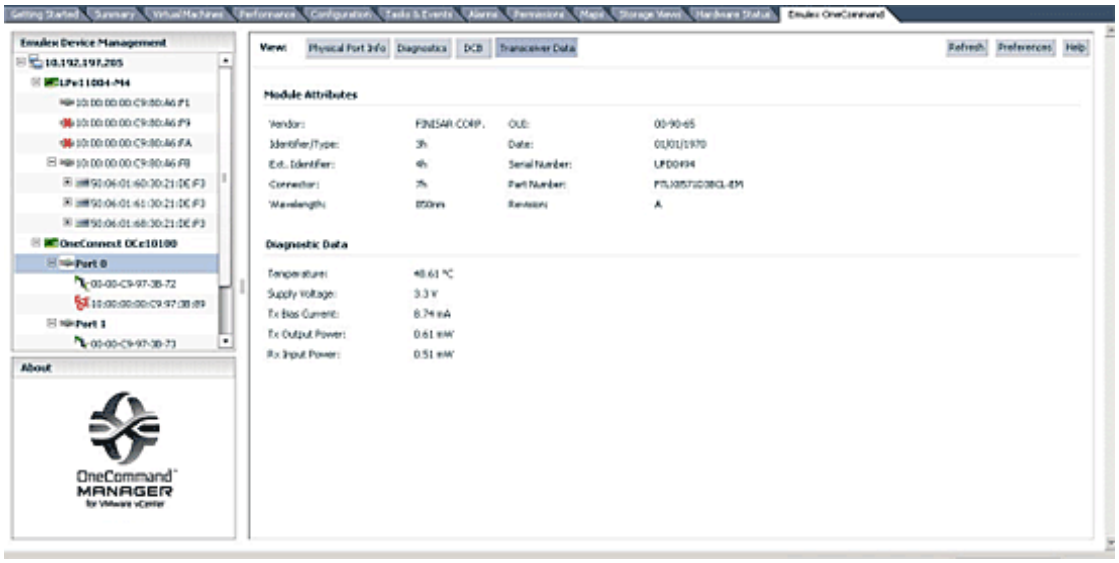

Figure 8-9 OCe 10XXX Port Transceiver Tab

Transceiver Information Field Definitions

Module Attributes Area

- Vendor – The name of the vendor.
- Identifier/Type – The identifier value that specifies the physical device described by the serial information.
- Ext. Identifier – Additional information about the transceiver.
- Connector – The external optical or electrical cable connector provided as the media interface.
- Wavelength – The nominal transmitter output wavelength at room temperature.

- OUI – The vendor's Organizationally Unique Identifier. It is also known as the IEEE Company Identifier for the vendor.
- Date – The vendor's date code in the MM/DD/YY format.
- Serial Number – The serial number provided by the vendor.
- Part Number – The part number provided by the SFP vendor.
- Revision – The vendor revision level.

Diagnostic Data Area

- Temperature – The internally measured module temperature.
- Supply Voltage – The internally measured supply voltage in the transceiver.
- TX Bias Current – The internally measured TX bias current.
- TX Output Power – The measured TX output power.
- RX Input Power – The measured RX input power.

Viewing and Configuring OneConnect Physical Port DCB Parameters

Viewing Physical Port DCB Parameters

The DCB tab shows the DCB parameters for a OneConnect physical port.

Note: DCB tab does not appear for OCe10XXX series with NIC only personality.

To view the DCB parameters for a OneConnect physical port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select a OneConnect adapter physical port for which you want to view DCB parameters.

3. Select the **DCB** tab.

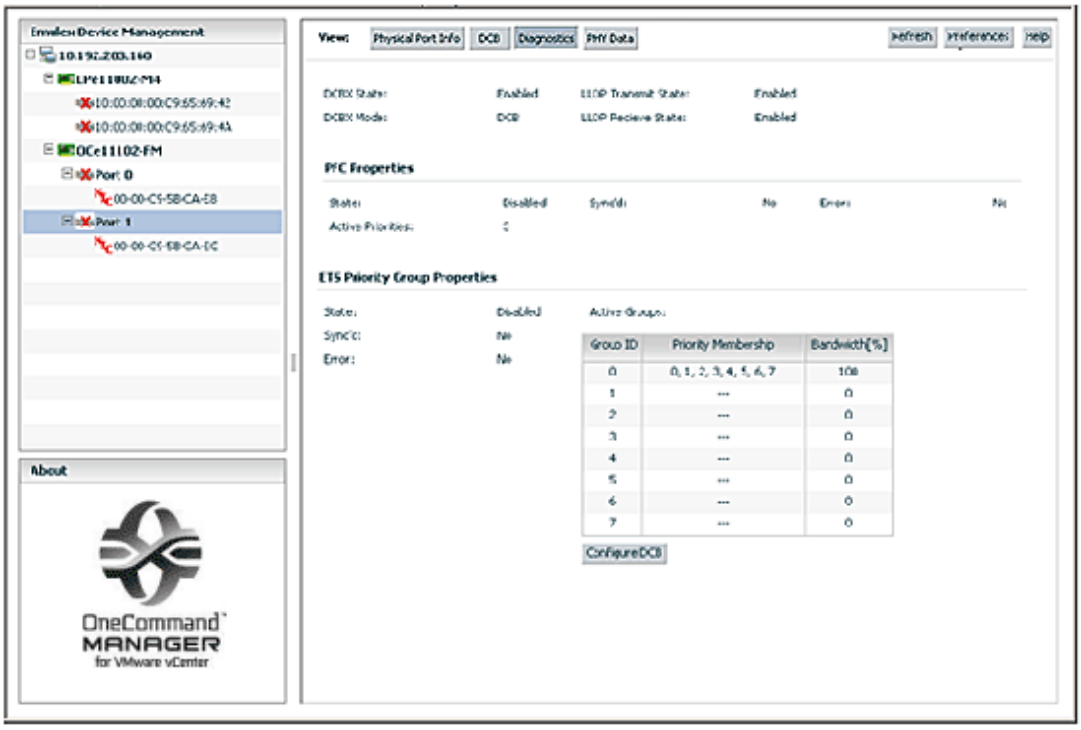

Figure 8-10 OneConnect FCoE Adapter Port, DCB Tab

DCB Tab Field Definitions

- DCBX State – The current DCBX (Data Center discovery and Capability exchange protocol) state (enabled or disabled).
- DCBX Mode – The DCBX mode can be either DCB or CIN.

  Note: DCBX mode also configures FIP mode. If DCBX mode is DCB, FIP is enabled. If it is CIN, FIP is disabled.

- LLDP Transmit State – DCBX uses Link Layer Discovery Protocol (LLDP) to exchange parameters between two link peers. For the DCBX protocol to operate correctly, both LLDP receive and transmit states must be enabled. If either the receive or transmit state is disabled, DCBX is disabled.
- LLDP Receive State – DCBX uses LLDP to exchange parameters between two link peers. For the DCBX protocol to operate correctly, both LLDP receive and transmit states must be enabled. If either the receive or transmit states is disabled, DCBX is disabled.

PFC Properties Area

- State – Enabled indicates that there is flow control in both directions (receive and transmit).
- Active Priority – Lists the priorities with PFC set to Enabled.

- Sync'd – If yes, the PFC priorities have been set by the peer. This parameter cannot be set.
- Error – The FCoE Error status. The error status indicates whether an error occurred during the configuration exchange with the peer. Error is also set to TRUE when the Compatible method fails.

FCoE Properties Area (FCoE adapter ports only)

- State – The FCoE state. It can be enabled or disabled.
- Active Priorities – The current active priority assigned for FCoE.
- Sync'd – If yes, the FCoE priority has been set by the peer. This parameter cannot be set.
- Error – The FCoE Error status. The error status indicates whether an error occurred during the configuration exchange with the peer. Error is also set to YES when the Compatible method fails.

iSCSI Properties Area (iSCSI adapter ports only)

- State – The iSCSI state. It can be Enabled or Disabled.
- Active Priorities – The current active priority assigned for iSCSI.
- Sync'd – If yes, the iSCSI priority has been set by the peer. This parameter cannot be set.
- Error – The iSCSI Error status. The error status indicates whether an error occurred during the configuration exchange with the peer. Error is also set to YES when the Compatible method fails.

ETS Priority Group Properties Area

- State – The Priority Groups state. It can be Enabled or Disabled.
- Sync'd – If yes, the Priority Groups have been set by the peer. This parameter cannot be set.
- Error – The Priority Groups Error status. The error feature indicates whether an error occurred during the configuration exchange with the peer. Error is also set to YES when the Compatible method fails.

Active Groups

- Group ID – The Priority Group number. It can be 0 to 7.
- Priority Membership – The priorities that are assigned to each Priority Group. It is represented in comma separated format.
- Bandwidth% – The percentage of available link bandwidth allocated to a particular Priority Group.

DCB Tab Button

The Configure DCB button allows you to configure the DCB parameters.

Configuring OneConnect Physical Port DCB Parameters

The DCB Configuration dialog box allows you to configure physical port DCB parameters. While there are eight ETS Priority Groups in which the priorities can be assigned, only two of those groups can be assigned priorities and bandwidths. The FCoE priority is assigned to one Priority Group and the other seven (NIC) priorities must be assigned to one and only one other Priority Group. If you are configuring Priority Groups on a DCBX enabled switch, in order to work properly with the adapter port, you should only configure two Priority Groups in the same way.

To configure DCB parameters for a OneConnect physical port:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select a OneConnect adapter physical port whose DCB properties you want to configure.
3. Select the **DCB** tab.
4. Click **Configure DCB**. The DCB Configuration dialog box appears.
5. Configure the settings you want and click **OK**.

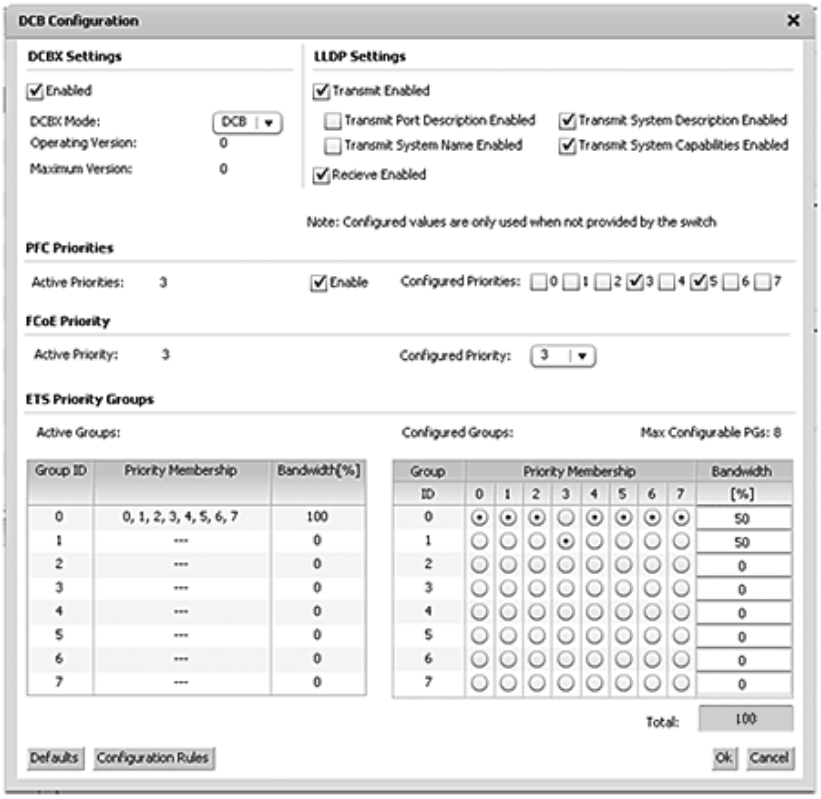

Figure 8-11 DCB Configuration Dialog Box for FCoE Adapter Ports (DCBX Enabled)

Configure DCB Dialog Box Field Definitions

DCBX Settings Area

- Enabled – DCBX can be enabled or disabled. With DCBX enabled, the configured values are used only if the switch does not provide them. With DCBX disabled, the configured values are used.
- DCBX Mode – The DCBX mode can be set to DCB or Cisco-Intel-Nuova (CIN). Changes to the DCBX mode require a reboot of the host.
- Operating Version – The operating version of the DCBX protocol. The system adjusts as needed to operate at the highest version supported by both link partners. This setting cannot be changed.
- Maximum Version – The highest DCBX protocol version supported by the system. Version numbers start at zero. The DCBX protocol must be backward compatible with all previous versions. This setting cannot be changed.

LLDP Settings Area

- Transmit Enabled – LLDP Transmit can be enabled or disabled.
- Transmit Port Description Enabled – Provides a description of the port in an alpha-numeric format. The value equals the ifDescr object, if the LAN device supports RFC 2863.
- Transmit System Name Enabled – Provides the system's assigned name in an alpha-numeric format. The value equals the sysName object, if the LAN device supports RFC 3418.
- Transmit System Description Enabled – Provides a description of the network entity in an alpha-numeric format. This includes system's name and versions of hardware, operating system and networking software supported by the device. The value equals the sysDescr object, if the LAN device supports RFC 3418.
- Transmit System Capabilities Enabled – Indicates the primary function(s) of the device and whether these functions are enabled on the device. The capabilities are indicated by two octets. Bits 0 through 7 indicate Other, Repeater, Bridge, WLAN AP, Router, Telephone, DOCSIS cable device and Station respectively. Bits 8 through 15 are reserved.
- Receive Enabled – LLDP Receive can be enabled or disabled.

PFC Priorities Area

For an OCe11XXX series adapter's NIC or iSCSI port, you can configure PFC priorities.

Note: There is no PFC support for an OCe10XXX series adapter's NIC or iSCSI port.

- Active Priorities – The priorities that are marked active for PFC.
- Enable – This checkbox enables PFC priorities.
  - If you are configuring a NIC port, clear this checkbox.
  - If you are configuring an iSCSI or FCoE port, select this checkbox.

- Configured Priorities – If the Enable checkbox is selected, these are the priorities that are configured, but might not yet be active. You can select two PFC priority checkboxes. One of these selections must match the iSCSI priority. The other PFC priority is for Ethernet traffic. The PFC priority for Ethernet traffic must be assigned to a Priority Group which has no other priorities.

  FCoE Priority Area (FCoE adapter ports only)

  - Active Priority – The active FCoE priority.
  - Configured Priority – The configured FCoE priority.

  iSCSI Priority Area (FCoE adapter ports only)

  - Active Priority – The active iSCSI priority.
  - Configured Priority – The configured iSCSI priority.

ETS Priority Groups Area

Active Groups

- Max Configurable PGs – The maximum number of Priority Groups that can be configured.
- Group ID – The Priority Group ID.
- Priority Membership – The different priorities assigned to the various Priority Groups. This is the current active configuration.
- Bandwidth – The bandwidths that are assigned to different Priority Groups. This is the current active configuration.

Configured Groups

- Group ID – The Priority Group ID.
- Priority Membership – The configured priority membership grouping.
- Bandwidth% – The configured bandwidth value for the different Priority Groups.

Configure DCB Dialog Box Buttons

- Defaults – Click to return parameters to default DCB settings.
- Configuration Rules – Click to view a window that lists the rules for configuring priorities. You must observe these rules when configuring Priority Groups for adapter ports. Configuration rules are displayed based on the type of adapter ports you are configuring.
- OK – Click to apply and save your changes.
- Cancel – Click to discard any changes you made.

FCoE and iSCSI Configuration Rules

- One and only one priority is configured for the priority.
- You can select a maximum of two PFC priorities and one of them must match the priority.
- The PFC Priority Group to which the priority is assigned must contain no other priorities.

- The additional PFC priority must be assigned to a Priority Group which has no other priority.
- Bandwidths of all the Priority Groups must total 100%.

NIC Configuration Rules

- One and only one priority is configured for the priority.
- The PFC priority must be assigned to a Priority Group which has no other priorities.
- Bandwidths of all the Priority Groups must total 100%.

9. Diagnostics

Running Diagnostic Tests on FC Adapter Ports

When running port diagnostic tests using OCM for VMware vCenter, do not perform any active management operations on the ESX host.

Running Loopback Tests

There are three loopback tests that you can run for the FC adapter port:

- PCI Loopback – A firmware controlled diagnostic test in which a random data pattern is routed through the PCI Bus without being sent to an adapter link port. The returned data is subsequently validated for integrity.
- Internal Loopback – A diagnostic test in which a random data pattern is sent down to an adapter link port, then is immediately returned without actually going out on the port. The returned data is subsequently validated for integrity.
- External Loopback – A diagnostic test in which a random data pattern is sent down to an adapter link port. The data goes out of the port and immediately returns via a loopback connector. The returned data is subsequently validated for integrity.

To run loopback tests:

1. From the Emulex Device Management tree-view, select the FC adapter physical port on which you want to run the loopback test.
2. Select the **Diagnostics** tab. In the Loopback Test area of the dialog box, choose the type of loopback test you want to run and define the loopback test parameters.

Figure 9-1 FC Adapter Diagnostics Tab

Note: You must insert a loopback plug in the selected adapter before running an External Loopback test. Also, you must ensure that the NIC function of the port goes to a link up state.

3. Click **Start Test**. The following warning appears:

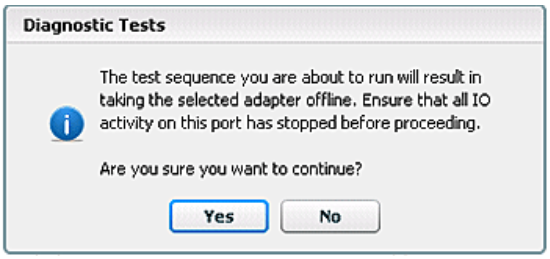
Diagnostic Tests
The test sequence you are about to run will result in taking the selected adapter offline. Ensure that all IO activity on this port has stopped before proceeding.
Are you sure you want to continue?
Yes
No

Figure 9-2 Diagnostic Tests Warning

4. Click **Yes**. A progress bar shows that the test is running.
5. Periodic test feedback, consisting of the current loopback test/cycle plus the completion status of each type of test, is displayed in the Test Status section of the dialog box. Click **Show Test Logs** to view and save the log file (Figure 9-10).

Running End-to-End (ECHO) Tests

Run echo tests using the End-to-End (ECHO) Test section of the Diagnostics tab. The end-to-end test enables you send an ECHO command/response sequence between an adapter port and a target port.

To run end-to-end echo tests:

1. From the Emulex Device Management tree-view, select the FC adapter physical port on which you want to initiate the End-to-End (ECHO) test.
2. Select the **Diagnostics** tab. In the End-to-End (Echo) Test area, select **Echo Test**.
3. Enter the WWPN for the target. The Diagnostic Test warning appears (Figure 9-9).
4. Click **Yes**. A result screen appears and the test results appear in the Test Log. Click **Clear** to erase the contents of the log display or click **Save to File** to save the log file.

Note: The ECHO test button is enabled only if its port has targets connected.

Running a Power On Self Test (POST)

The POST is a firmware test normally performed on an adapter after a reset or restart. The POST does not require any configuration to run.

To run the POST:

1. From the Emulex Device Management tree-view, select the FC adapter physical port on which you want to run the POST.
2. Select the **Diagnostics** tab and in the Standard Tests area, click **Start Test**. A progress window appears, showing the progress of the POST test.
3. Once the test is completed, the Test Completion Status window appears. Click **OK**. A POST window appears with the POST information.

Using Beaconing

Beaconing enables you to force a specific adapter's LEDs to blink in a particular sequence. The blinking pattern acts as a beacon, making it easier to locate a specific adapter among racks of other adapters.

When you enable beaconing for OneConnect adapters, the two LEDs blink rapidly in unison until you disable beaconing.

Note: Beaconing is disabled if the selected adapter does not support beaconing.

To enable or disable beaconing:

1. From the Emulex Device Management tree-view, select the adapter port whose LEDs you want to set.
2. Select the **Diagnostics** tab and click **Beacon On** or **Beacon Off**.

Setting Up Diagnostic Test Options

Setting Up a Test Failure Error Action

There are two error action options in the event of a test failure:

- Stop Test – Does not log the error and aborts the test. No further tests are run.
- Ignore – Logs the error and proceeds with the next test cycle.

Setting Up Test Cycles

Specify one of the following test cycles:

- Select an established cycle count by clicking on the corresponding radio button.
- Enter a custom cycle count in the blank field in the Test Cycles area.
- Set the test to run until you manually click Stop Test, by selecting the Infinite radio button.

Setting Up a Test Pattern

Enter a custom test pattern to be used in tests that transfer data. The test pattern can be up to eight hexadecimal bytes.

Test Status

The Test Status area shows how many completed cycles of each test ran, as well as the number of errors.

Saving the Log File

You can save the test log to a log file for later viewing or printing. When data is written to a saved file, the data is appended at the end of the file. Each entry has a two-line header with the adapter identifier and the date and time of the test. The data accumulates to form a chronological history of the diagnostics performed on the adapter.

- The default location is the OCM for VMware vCenter install directory on your local drive.
- In the VMware Server: There is no default directory for ESX/ESXi.

After writing an entry into the log, you are prompted to clear the display. Figure 9-3 shows the Diagnostic Test log entries that will be saved to the log file.

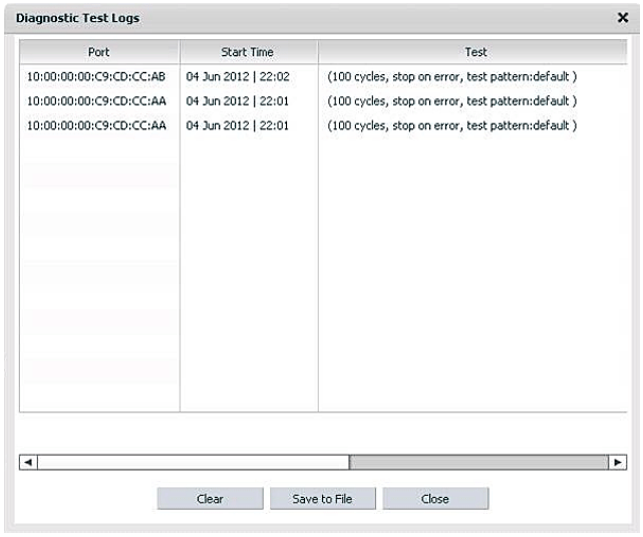

Figure 9-3 Diagnostic Test Log Entries

To save the log file:

1. After running a test from the Diagnostic tab, click **Show Test Logs**. The Diagnostic Test Logs dialog box appears. The default name of a saved file is DiagTest.log.
2. Browse to the desired directory, change the log file name if you want and click **Save to File**.

Creating FC Port Diagnostic Dumps

Diagnostic dump enables you to create and manage a diagnostic dump for a selected FC port. Dump files contain information, such as firmware version and driver version for example, that is particularly useful when troubleshooting an adapter.

To start a diagnostic dump:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the FC port.

3. Select the **Diagnostic Dump** tab. The Diagnostic Dump information pane appears.

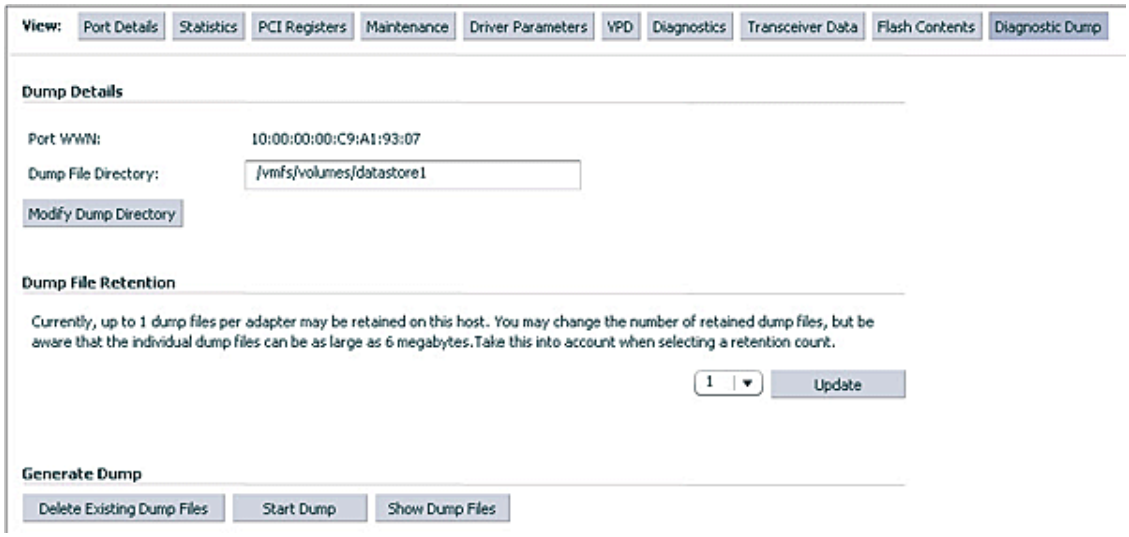

Figure 9-4 FC Port Diagnostic Dump Tab

4. Enter a name in the Dump File Directory field in the Dump Details area to set the dump file directory. A prefix of /vmfs/volumes is added to the location, if it is not specified.
5. To specify up to 20 files to retain using the Dump Files Retention counter, enter the number of files and click **Update**.
6. Click **Start Dump** to initiate a diagnostic dump on the selected FC port. Click **Delete Existing Dump Files** to remove existing dump files for the selected FC port.

   Caution: Disruption of service may occur if a diagnostic dump is run during I/O activity.

Diagnostic Dump Tab Field Definitions

- Serial Number – The port WWN.
- Dump File Directory – The location where the dump files are created.
- Dump File Retention – The number of dump files per FC port to retain on the host.

Diagnostic Dump Tab Buttons

- Modify Dump Directory – Click to modify the dump file directory.
- Update – Click to change the dump file retention count.
- Delete Existing Files – Click to remove existing dump files from the selected FC port.
- Start Dump – Click to initiate a diagnostic dump on the selected FC port.
- Show Dump Files – Click to view the diagnostic dump files generated through the diagnostic dump feature.

Viewing Diagnostic Dumps Files

Diagnostic dump file names can be viewed using the OneCommand Manager application. The dump files are stored on the host's data store and the vSphere client can be used to download dump files by browsing the host data store.

To view the FC port diagnostic dump in the OneCommand Manager application:

1. Click **Show Dump Files**. The Diagnostic Dump Files window opens showing the diagnostic dump files currently on your system. These files are available in the dump directory configured from the Diagnostic Dumps tab. You can extract these files using the vSphere client.

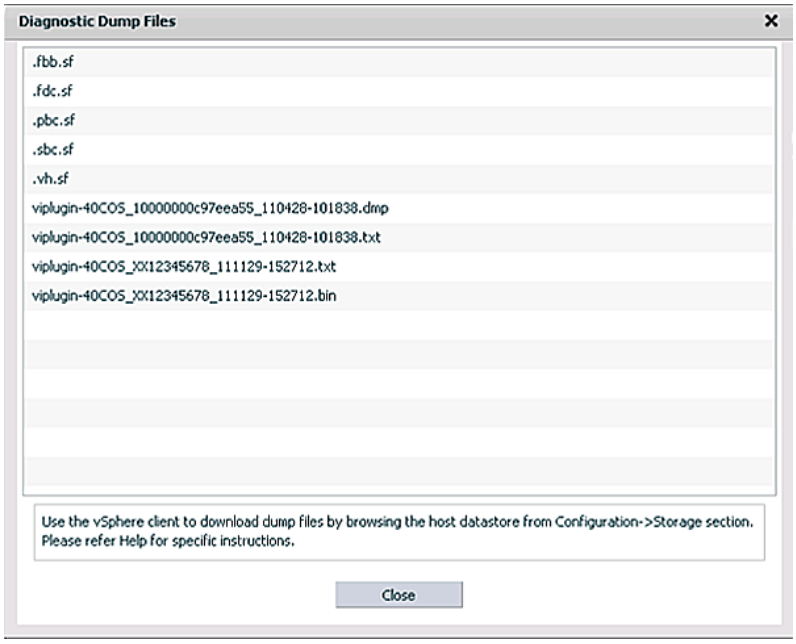

Figure 9-5 Diagnostic Dump Files window

2. Extract the dump files by using the vSphere client to download the dump files by browsing the data store.
   a. Click the Configuration tab in the vSphere client. The Datastores view is displayed (Figure 9-6 on page 140).
   b. Right-click the datastore where your dump file is located, and select **Browse Datastore...** from the context menu. A Datastore Browser window opens (Figure 9-7 on page 140).
   c. In the Datastore Browser, right-click the dump file that you want to review and select **Download...** from the context menu. A Browse for Folder window opens.
   d. Select the desired location for the dump files in the Browse for Folder window and press **OK**. The file is down loaded to the location you select.

      You can view the dump file in any text editor.

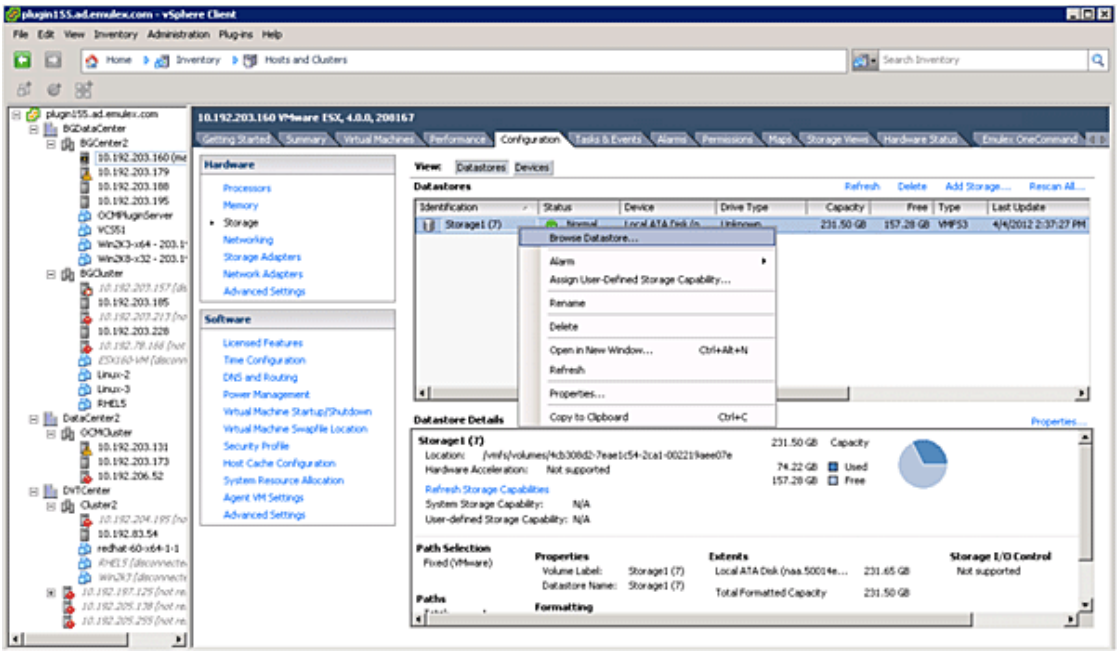

Figure 9-6 Datastores View of vSphere Client

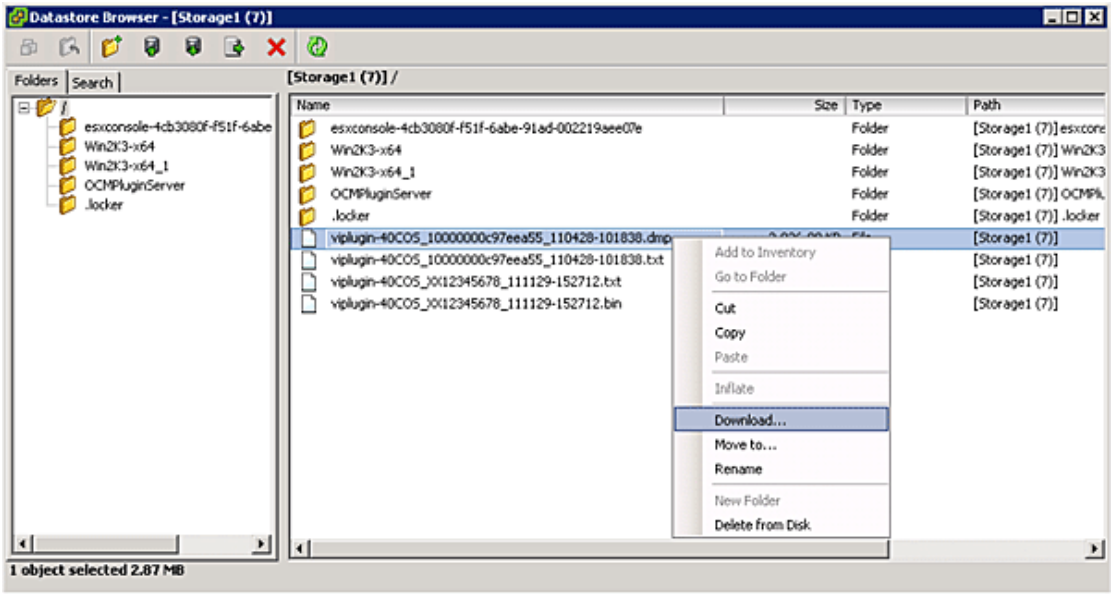

Figure 9-7 vSphere Datastore Browser

Running Diagnostic Tests on OneConnect Adapter Ports

Running Loopback Tests

Note: When running port diagnostic tests using OCM for VMware vCenter, do not perform any active management operations on the ESX host.

Run the following loopback tests:

- PHY Loopback – The PHY loopback test connects the transmit output of the physical layer to the receive input of the physical layer. The data is transmitted, received and checked for data miscompute errors.
- MAC Loopback – The MAC loopback test connects the transmit output of the MAC controller to the receive input of the MAC controller (bypassing the PHY).

To run loopback tests:

1. From the Emulex Device Management tree-view, select the OneConnect adapter physical port on which you want to run the loopback test.
2. Select the **Diagnostics** tab. In the Loopback Test area of the dialog box, choose the type of loopback test you want to run and define the loopback test parameters.

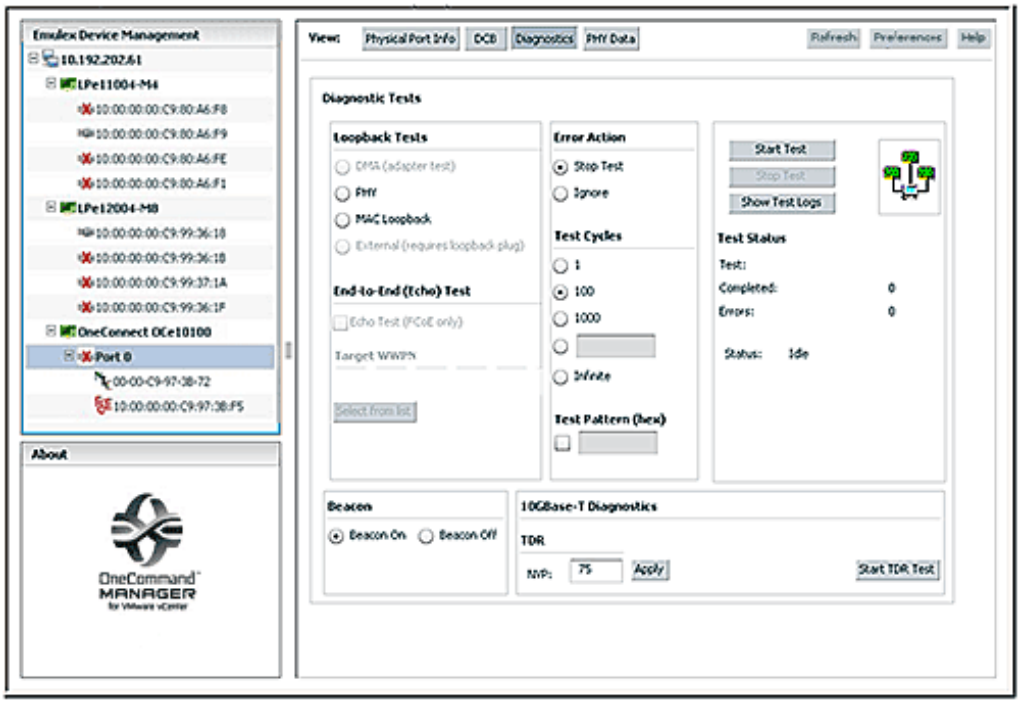

Figure 9-8 OneConnect Adapter Diagnostics Tab

You must insert a loopback plug in the selected adapter before running an External Loopback test. Also, you must ensure that the NIC function of the port goes to a link up state.

3. Click **Start Test**. The following warning appears:

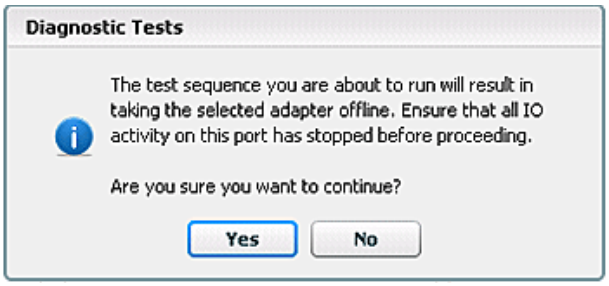
Diagnostic Tests
The test sequence you are about to run will result in taking the selected adapter offline. Ensure that all IO activity on this port has stopped before proceeding.
Are you sure you want to continue?
Yes
No

Figure 9-9 Diagnostic Tests Warning

4. Click **Yes**. A progress bar shows that the test is running.

   Periodic test feedback, consisting of the current loopback test/cycle plus the completion status of each type of test, is displayed in the Test Status section of the dialog box. Click **Show Test Logs** to view and save the log file (Figure 9-10).

Using Beaconing

Beaconing can force an adapter's LEDs to blink in a particular sequence. The blinking pattern acts as a beacon, making it easier to locate a specific adapter among racks of other adapters.

When you enable beaconing for OneConnect adapters, the two LEDs blink rapidly in unison until you disable beaconing.

Note: Beaconing is disabled if the selected adapter does not support beaconing.

To enable or disable beaconing:

1. From the Emulex Device Management tree-view, select the adapter port whose LEDs you want to set.
2. Select the **Diagnostics** tab and click **Beacon On** or **Beacon Off**.

Running a TDR Test (10GBaseT Series Adapters Only)

To run a TDR (Time Domain Reflectometry) test:

1. From the Emulex Device Management tree-view, select the adapter port on which you want to run a TDR test.
2. Select the **Diagnostics** tab.
3. In the TDR area, enter an NVP (nominal velocity of propagation) value. This value compares the cable speed of reflection versus the speed of light.
4. Click **Start TDR Test**.

Setting Up Diagnostic Test Options

Setting Up a Test Failure Error Action

There are two error action options in the event of a test failure:

- Stop Test – Does not log the error and aborts the test. No further tests are run.
- Ignore – Logs the error and proceeds with the next test cycle.

Setting Up Test Cycles

Specify one of the following test cycles:

- Select an established cycle count by clicking on the corresponding radio button.
- Enter a custom cycle count in the blank field in the Test Cycles area.
- Set the test to run until you manually click Stop Test, by selecting the Infinite radio button.

Setting Up a Test Pattern

Enter a custom test pattern to be used in tests that transfer data. The test pattern can be up to eight hexadecimal bytes.

Test Status

The Test Status area shows how many completed cycles of each test ran, as well as the number of errors. Periodic test feedback, consisting of the current loopback test/cycle plus the completion status of each type of test, is displayed in the Test Status area. Click **Show Test Logs** to view and save the log file (Figure 9-10).

Saving the Log File

You can save the test log to a log file for later viewing or printing. When data is written to a saved file, the data is appended at the end of the file. Each entry has a two-line header that contains the identifier of the adapter being tested and the date and time of the test. Over time, the data accumulates to form a chronological history of the diagnostics performed on the adapter.

- The default location is the OCM for VMware vCenter install directory on your local drive.
- In the VMware Server: There is no default directory for ESX/ESXi.

After writing an entry into the log, you are prompted to clear the display.
Figure 9-10 shows the Diagnostic Test log entries that will be saved to the log file.

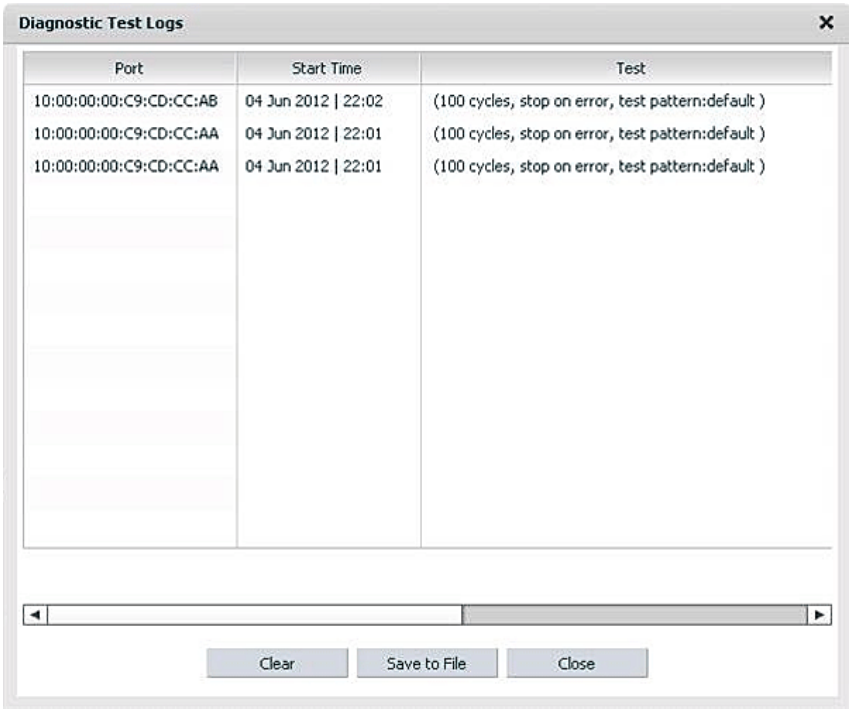

Figure 9-10 Diagnostic Test Log Entries

To save the log file:

1. After running a test from the Diagnostic tab, click **Show Test Logs**. The Diagnostic Test Logs dialog box appears. The default name of a saved file is DiagTest.log.
2. Browse to the desired directory, change the log file name if you want and click **Save to File**.

Creating OneConnect Port Diagnostic Dumps

Diagnostic dump enables you to create and manage a diagnostic dump for a selected OneConnect adapter port. Dump files contain information, such as firmware version and driver version for example, that is particularly useful when troubleshooting an adapter.

To start a diagnostic dump:

1. Select a host in the vSphere console tree-view and select the **Emulex OneCommand** tab.
2. In the Emulex Device Management tree-view, select the OneConnect port.

3. Select the **Diagnostic Dump** tab. The Diagnostic Dump information pane appears.

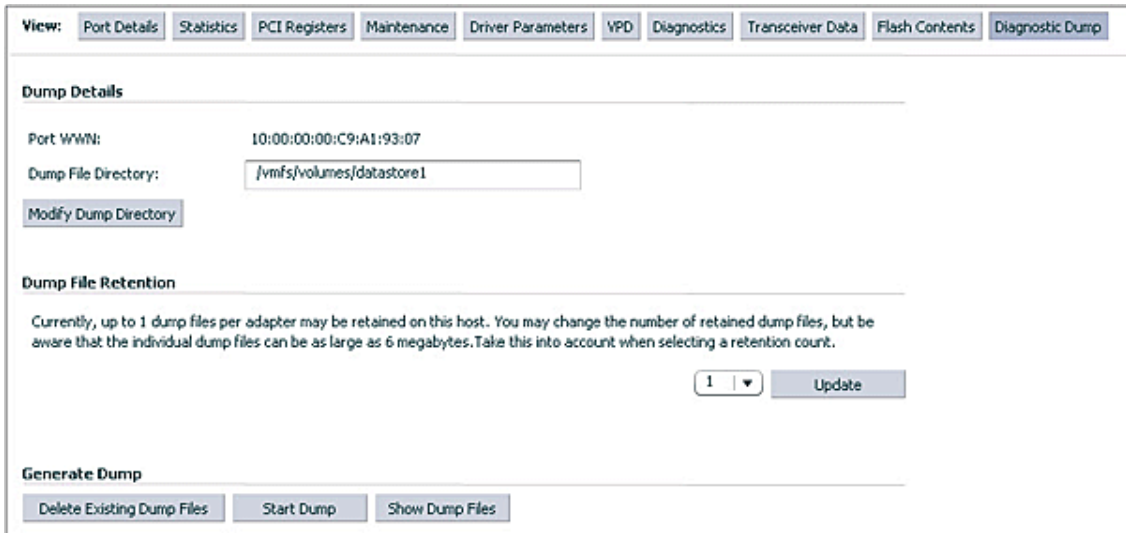

Figure 9-11 OneConnect Port Diagnostic Dump Tab

4. Enter a name in the **Dump File Directory** field in the Dump Details area to set the dump file directory. A prefix of /vmfs/volumes is added to the location, if it is not specified.
5. To specify up to 20 files to retain using the Dump Files Retention counter, enter the number of files and click **Update**.
6. Click **Start Dump** to initiate a diagnostic dump on the selected FC port. Click **Delete Existing Dump Files** to remove existing dump files for the selected OneConnect port.

   Caution: Disruption of service may occur if a diagnostic dump is run during I/O activity.

Diagnostic Dump Tab Field Definitions

- Serial Number – The port WWN.
- Dump File Directory – The location where the dump files are created.
- Dump File Retention – The number of dump files per OneConnecct port to retain on the host.

Diagnostic Dump Tab Buttons

- Modify Dump Directory – Click to modify the dump file directory.
- Update – Click to change the dump file retention count.
- Delete Existing Files – Click to remove existing dump files from the selected OneConnect port.
- Start Dump – Click to initiate a diagnostic dump on the selected OneConnect port.
- Show Dump Files – Click to view the diagnostic dump files generated through the diagnostic dump feature.

Viewing Diagnostic Dumps Files

Diagnostic dump file names can be viewed using the OneCommand Manager application. The dump files are stored on the host's data store and the vSphere client can be used to download dump files by browsing the host data store.

To view the FC port diagnostic dump in the OneCommand Manager application:

1. Click **Show Dump Files**. The Diagnostic Dump Files window opens showing the diagnostic dump files currently on your system. These files are available in the dump directory configured from the Diagnostic Dumps tab. You can extract these files using the vSphere client.

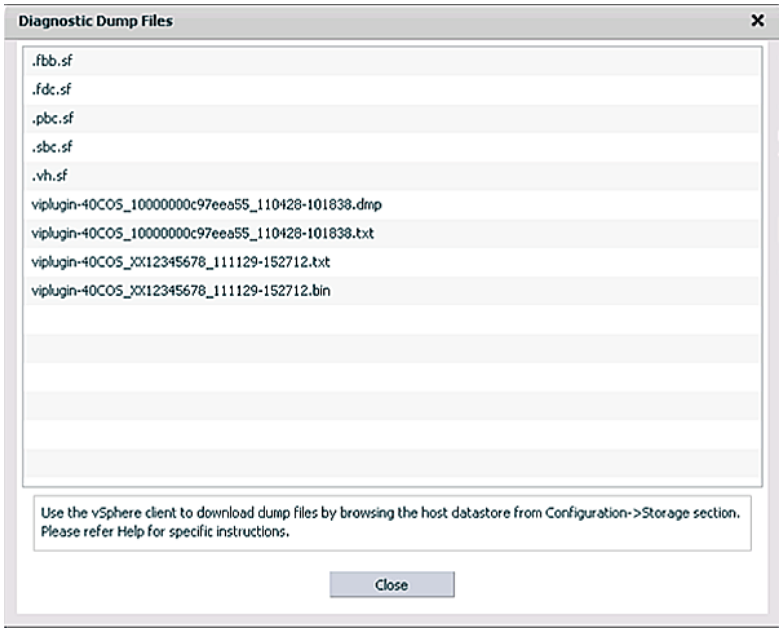

Figure 9-12 Diagnostic Dump Files window

2. Extract the dump files by using the vSphere client to download the dump files by browsing the data store.
   a. Click the Configuration tab in the vSphere client. The Datastores view is displayed (Figure 9-6 on page 140).
   b. Right-click the datastore where your dump file is located, and select **Browse Datastore...** from the context menu. A Datastore Browser window opens (Figure 9-7 on page 140).
   c. In the Datastore Browser, right-click the dump file that you want to review and select **Download** from the context menu. A Browse for Folder window opens.
   d. Select the desired location for the dump files in the Browse for Folder window and press **OK**. The file is down loaded to the location you select.

You can view the dump file in any text editor.

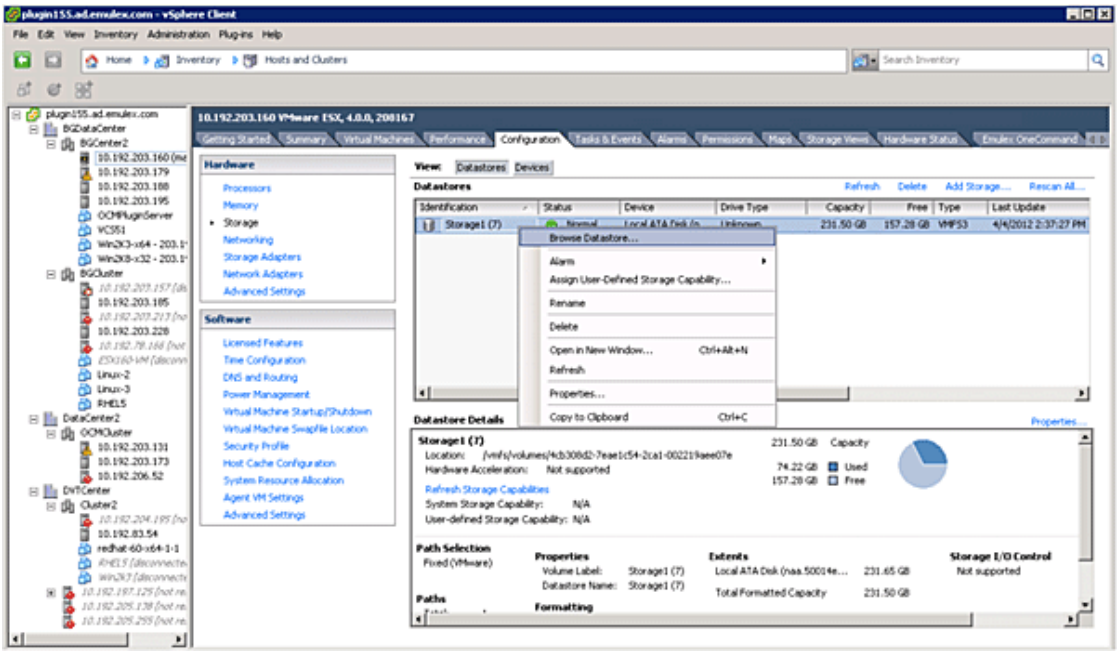

Figure 9-13 Datastores View of vSphere Client

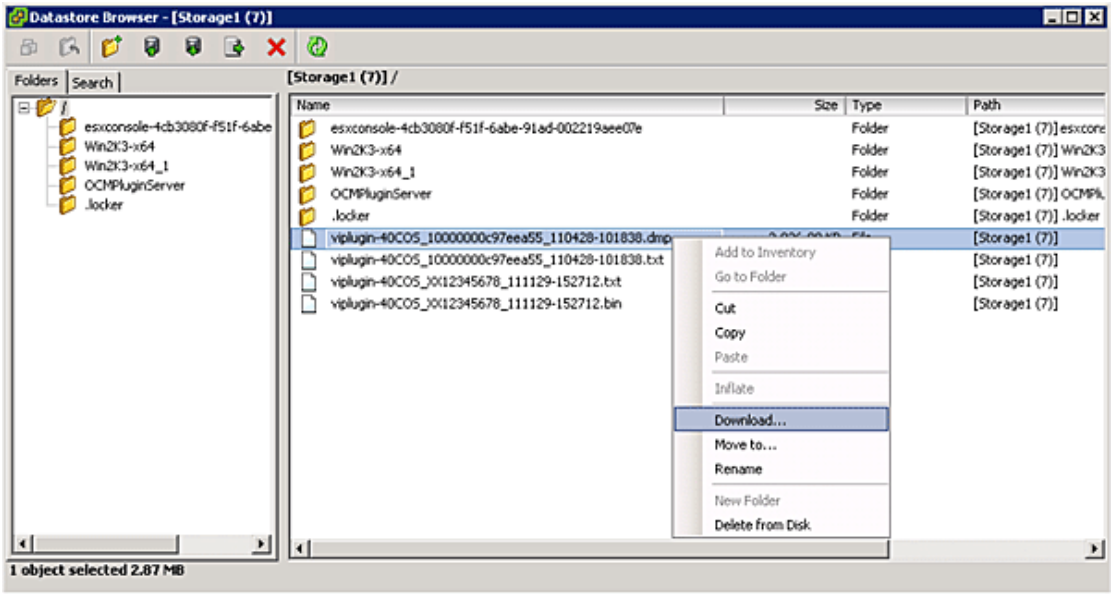

Figure 9-14 vSphere Datastore Browser

10. Using OCM for VMware vCenter Command Line Interface

The Command Line Interface (CLI) client component of OCM for VMware vCenter is installed as part of OCM for VMware vCenter installation.

OCM for VMware vCenter CLI can manage Emulex adapters in systems with VMware 4.1 COS and Visor environments, and ESXi 5.0 and 5.1 environments.

In order to run any of the CLI commands you must run the elxvcpcmd.exe file, which is available in the OCM for VMware vCenter installation directory (which is by default C:\Program Files\Emulex). This component is intended for use in scripted operations within batch files. Each time you run this script from the command line, a single operation is performed.

Most operations retrieve information about an entity on the storage area network (SAN) and show that information on the console.

OCM for VMware vCenter CLI runs only in TCP/IP mode.

Most of the CLI client commands require one or more additional parameters that specify the nature of the command. For FC and FCoE ports, the world wide port name (WWPN) of the adapter must be specified.

To run a command at the cluster level, use:

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
c=<clustername> <ocm_cmd> [<ocm_cmd_arg>...]
```

For example, run the following command to export SAN information for a cluster:

```
elxvcpcmd.exe v=10.192.203.162 u=Administrator  p=password
c=ih123vid34 exportsaninfo [csv]
```

To run a command at the host level, use:

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
h=<esx_host> <ocm_cmd> [<ocm_cmd_arg>...]
```

For example, run the following command to display the port attributes for the adapter with the specified WWPN:

```
elxvcpcmd.exe  v=10.120.121.122 u=Administrator p=password
h=10.120.121.123 portattributes 10:00:00:00:C9:39:6C:9D
```

For NIC ports, the MAC address must be specified.

For example, run the following command to display the port attributes for the UCNA port with the specified MAC address:

```
elxvcpcmd.exe  v=10.120.121.122 u=Administrator p=password
h=10.120.121.123 portattributes 00-11-22-33-44-55
```

For help purposes only, all commands are grouped together.

For more information about the group help command, see page 149. For more information about commands in each group, see Table 10-1 on page 150.

Using the CLI Client

Syntax Rules

The syntax rules for CLI commands are as follows:

- All commands must start with `elxvcpcmd.exe`.
- The requested operation must contain at least three characters, or as many as needed to distinguish it from any other operation.
- Whenever a WWPN is specified, individual fields are separated by colons (:)
- When a MAC address is specified, the fields are separated by a dash (-).
- The parameters must be specified in the order indicated in the syntax.
- Parameters that are not required and may be omitted are in square brackets [ ].

The Command Reference

CLI Client commands are supported for Windows only.

help (single command)

Syntax

```
elxvcpcmd.exe [CmdName] help
```

Description

This command shows the help for the specific command.

Parameters

`CmdName` Any CLI command.

help (group)

Syntax

```
elxvcpcmd.exe help
```

Description

This command shows the help for a group. These help groups are categorized based on the functionality of the commands. Supported groups are: Cluster, Attributes, AdapterLicense, Personality, Firmware, DriverParameters, WWNManagement, and TargetAndLuns.

You can specify the group name in the help command to find the commands supported for a group.

Table 10-1 Group and Supported Commands

Group	Definition	Supported Commands
General	General commands that can be run on the OneCommand Manager application for VMware servers.	"setvccred" "version"
AdapterLicense	A set of commands used to read and manage personality licenses for an Emulex adapter.	"installadapterlicense" "showlicenseadapterfeatures" "showlicenseadapterid"
Attributes	A set of commands used to read and manage information about an adapter.	"getpcidata" "getportstatistics" "getvpd" "hbaattributes" "listhbas" "portattributes" "serverattributes" "setphyportspeed" "setportenabled"
Boot Group	A set of commands enabling an ESX host to manage the boot environment.	"enablebootcode"
Cluster	A set of commands that can be run on a cluster.	"exportsaninfo" "firmwareupdate" "listhbas"
DCB Group	A set of commands enabling an ESX host to read and manage DCB params for an Emulex adapter.	"getdcbparams" "getpginfo" "setcnapgbw" "setdcbparam" "setdcbpriority"
Diagnostic	A set of commands used to run different diagnostic tests for an Emulex adapter or port.	"echotest" "getbeacon" "getxcvrdata" "loadlist" "loopbacktest" "posttest" "setbeacon" "setcablenvp" "tdrtest"

Table 10-1 Group and Supported Commands *(Continued)*

Group	Definition	Supported Commands
DriverParameters	A set of commands enabling an ESX host to read and manage driver parameters for the host and an Emulex adapter.	"driverconfig" "getdriverparams" "getdriverparamsglobal" "saveconfig" "setdriverparam" "setdriverparamdefaults"
Dump	A set of commands enabling you to create a "dump" file for a selected adapter. A dump files is useful when troubleshooting.	"deletedumpfiles" "dump" "getdumpdirectory" "getdumpfilenames" "getretentioncount" "setdumpdirectory" "setretentioncount"
FCoE	A set of commands enabling an ESX host to read and manage FCoE functions for an Emulex adapter.	"getfcfinfo" "getfipparams" "setfipparams"
Firmware	A set of commands enabling an ESX host to update the firmware for an Emulex adapter or port.	"firmwareupdate"
iSCSI Group	A set of commands enabling an ESX host to read and manage iSCSI functions for an Emulex adapter.	"clearisnsserver" "getinitiatorproperties" "getiscsiportstats" "getsessioninfo" "listsessions" "showisnsserver" "updateisnsserver"
Personality	A set of commands enabling an ESX host to read and manage personalities for an Emulex adapter.	"changepersonality" "showpersonalities"
TargetAndLuns	A set of commands enabling an ESX host to read targets and LUNS attached to the port on an Emulex adapter.	"getiscsiluns" "getlunlist" "showtarget" "targetmapping"

Table 10-1 Group and Supported Commands *(Continued)*

Group	Definition	Supported Commands
UMC Group	A set of commands enabling an ESX host to manage Universal Multichannel support.	"umcEnable" "umcgetparams" "umcSetBW" "umcSetChanLink" "umcSetLPVID"
Virtual Machines	A set of commands enabling an ESX host to find Virtual Machines and their attached ports.	"listvms" "listvports"
WWWNManagement	A set of commands enabling an ESX host to read and manage the WWN details for the port on an Emulex adapter.	"changewwn" "getwwncap" "readwwn" "restorewwn"

Example

```
elxvcpcmd.exe  attributes help
```

Information returned

```
Commands for Attributes
        listhbas, hbaattributes, portattributes, pcidata, getvpd
```

Parameters

None.

changepersonality

Syntax:

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> changepersonality <WWPN | MAC> [FCoE\iSCSI\NIC]
```

Description

This command changes the valid personality of the adapter to which the specified port belongs.

Parameters

`h`	The IP Address of the ESX host with Emulex adapters.
`WWPN`	The port's WWPN.
`MAC`	The MAC address of the NIC port.
`[FCoE\iSCSI\NIC]`	The changed personality that is activated upon a system reboot.

changewwn

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> changewwn <WWPN> <New WWPN> <New WWNN> <ReadType>
```

Description

This command changes the WWN of the specified port.

Parameters

h	The IP Address of the ESX host with Emulex adapters.
WWPN	The port's WWPN.
ReadType	0 = Volatile, 1 = Non-volatile.

clearisnsserver

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> clearisnsserver <MAC>
```

Description

This command clears the configured iSNS server and disables iSNS target discovery for a given port. If there is no iSNS server currently configured, this command does nothing.

Parameters

v	The IP address of the vCenter server managing the ESX host.
u	The user name of the vCenter server.
p	The user password for the vCenter server.
h	The IP address of the ESX host with Emulex adapters.
MAC	The MAC address of the iSCSI port.

deletedumpfiles

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> deletedumpfiles <WWN | MAC>
```

Description

This command deletes all diagnostic dump files for a given port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC or iSCSI port.

driverconfig

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> driverconfig <WWPN> <FileName> <Flag>
```

Description

This command sets all driver parameters to the values in the .dpv file type on a particular ESX host. The .dpv file's driver type must match the driver type of the host platform FC/FCoE adapter.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
FileName	The name of the .dpv file (stored in the Emulex Repository directory)
Flag	G = Makes change global (all adapters on this host) N = Makes change non-global (adapter-specific)

dump

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> dump <WWPN | MAC> core [Options]
```

Description

Use this command to perform a core dump on a given local OCe11102 (UCNA) or OCe10102 (UCNA) port. The dump file is placed in the dump directory with the following filename format:

```
<Hostname>_<Adapter serial number>_<datetimestamp>.core
```

If the command is successful, the following message is displayed:

```
Dump Successful.
```

Note: Since this command is dumping memory, it can take time while generating large files.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the UCNA port.
Options	Additional options are available under the direction of Technical Support.

echotest

Syntax

```
elxvcpcmd.exe  v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> echo <WWN | MAC> <Destination WWPN> <Count>
<StopOnError> [Pattern]
```

Description

This command is used to run a loopback test on a given FC, FCoE, NIC or iSCSI port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC or iSCSI port.
Destination WWPN	WWPN of the destination (echoing) adapter.
Count	The number of times to run the test (0 = run test infinitely, Range = 1...99,999)
StopOnError	Checks if the test must be halted on error. 0 = No halt 1 = Halt
Pattern (optional)	1 to 8 hexadecimal bytes to use for loopback data (for example: 1a2b3c4d)

Example

```
elxvcpcmd.exe  v=10.20.30.40 u=user p=password  h=1.2.3.4 echo
10:00:00:c9:12:34:56 10:00:00:c9:ab:cd:ee 100 1 1a2b3c4d5e
```

enablebootcode

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> enablebootcode <WWPN | MAC> [Flag][NetworkBootMethod]
```

Description

This command enables or disables the boot BIOS state on a given port by enabling or disabling the boot code on the FC adapter, the Preboot Execution Environment (PXE) BIOS or the iSCSI Boot Firmware Table (iBFT) for 16GB ports of the NIC on the UCNA adapter.

Parameters

`v`	The vCenter server IP address.
`u`	The user name for the vCenter server.
`p`	The user password for the vCenter server.
`h`	The IP Address of the ESX host with Emulex adapters.
`WWPN`	The WWPN of a port on the ESX host with Emulex adapters.
`MAC`	The MAC address of the UCNA port.
`Flag`	0 – disable Boot BIOS state. 1 – enable Boot BIOS state.
`NetworkBootMethod`	Network boot method to be used by the NIC • iBFT – iSCSI Boot Firmware Table • PXE– preboot execution environment

exportsaninfo

Note: Emulex recommends that you redirect this output to a file with a proper extension, ".xml" for XML-formatted files and ".csv" for CSV-formatted files.

Due to the amount of information that must be obtained and reported, this command can take a long time on large SAN configurations.

Syntax

```
elxvcpcmd.exe v=<vcenter server> u=<vc_username> p=<vc_pwd>
<c=clustername> exportsaninfo [format]
```

Note: `[format]` is optional. If the format parameter is specified as csv, the adapter information is shown in csv format. If the format parameter is specified as xml, the adapter information is shown in xml format. Leaving the format parameter blank shows the data in xml format.

Description

This command exports all SAN information related to Emulex adapters in all the hosts in a cluster. This command is supported only at the cluster level.

Parameters

`v`	The vCenter server IP address.
`u`	The user name for the vCenter server.
`p`	The user password for the vCenter server.
`c`	The cluster name.
`Format`	csv – The output information in CSV format. xml – The output information in XML format (default).

firmwareupdate

Syntax

For a cluster:

```
elxvcpcmd.exe v=<vcenter server> u=<vc_username> p=<vc_pwd>
c=<clustername> firmwareupdate [all|WWNs|MACs] <filelocation>
```

For a host:

```
elxvcpcmd.exe v=<vcenter server> u=<vc_username> p=<vc_pwd>
h=<ESXhostIP> firmwareupdate [all|WWNs|MACs] <filelocation>
```

Description

This command updates the firmware on the Emulex adapters found in the specified VMware cluster or the ESX host.

Procedure

1. Run the firmwareupdate command. A list of adapter serial numbers (for OneConnect adapters) or port WWNs (for LightPulse adapters) are displayed, applicable to the firmware file specified.
2. Select the adapter or port option to use for the update. **List**, **Range**, **All** or **Choice** options are displayed.

   The firmware update process begins and returns the result for each adapter or port.
3. If you press **<Ctrl> + <C>** and the firmware update process has started on any adapter or port, the update continues. But if the firmware update process is queued, the update is cancelled.

Note: The optional argument [all|WWNs|MACs] updates the firmware without any user prompt. Either "all" or a combination of "WWNs" and "MACs" can be given as an option.

You can view the status of submitted firmware jobs on the **Maintenance** tab of the cluster or host.

Parameters

`v`	The vCenter server IP address.
`u`	The user name for the vCenter server.
`p`	The user password for the vCenter server.
`c`	The cluster name in the vSphere console.
`h`	The IP Address of the ESX host with Emulex adapters.
`all|WWNs|MACs (optional)`	The "all" optional argument updates all compatible adapters or ports without any user prompt. The "WWNs" or "MACs" optional argument updates the port WWNs or MACs belonging to a specified cluster or host without any user prompt.
`file_location`	The firmware file path on the local disk.

getbeacon

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getbeacon <WWPN | MAC>
```

Description

This command shows the current beacon state, ON or OFF.

Parameters

`v`	The vCenter server IP address.
`u`	The user name for the vCenter server.
`p`	The user password for the vCenter server.
`h`	The IP Address of the ESX host with Emulex adapters.
`WWPN`	The WWPN of the FC or FCoE port.
`MAC`	The MAC address of the NIC or iSCSI port.

getdcbparams

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getdcbparams <WWPN | MAC>
```

Description

This command is used to extract the DCB parameters associated with a given FCoE, NIC or iSCSI port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of the FC or FCoE port.
MAC	The MAC address of the NIC or iSCSI port.

getdriverparams

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> getdriverparams <WWPN | MAC>
```

Description

This command shows the driver parameters of the specified port.

Parameters

h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of the FC/FCoE port.
MAC	The MAC address of the NIC or iSCSI port.

getdriverparamsglobal

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> getdriverparamsglobal <WWPN | MAC>
```

Description

This command shows the global driver parameters of the specified port.

Parameters

h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of the FC/FCoE port.
MAC	The MAC address of the NIC or iSCSI port.

getdumpdirectory

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getdumpdirectory <WWN | MAC>
```

Description

This command shows the dump file directory for the FCoE, NIC or iSCSI port in the host.

Note: The dump directory applies to all adapters in the server. There is not a separate dump directory for each adapter.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC or iSCSI port.

getdumpfilenames

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getdumpfilenames <WWPN | MAC>
```

Description

This command get a lists of all the dump filenames for a given port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC or iSCSI port.

getfcfinfo

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getfcfinfo <WWPN>
```

Description

This command shows the FCF information of an adapter in FCoE mode.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

getfipparams

Syntax

```
elxvcpcmd.exe  v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getfipparams <WWPN>
```

Description

This command gets the FCoE Initialization Protocol (FIP) parameters of the OneConnect adapter in FCoE mode.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

getinitiatorproperties

Syntax

```
elxvcpcmd.exe  v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getinitiatorproperties <MAC>
```

Description

This command shows all the initiator login options for the specified port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.

getiscsiluns

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> getiscsiluns <MAC> <Target>
```

Description

This command shows the LUNs attached to the iSCSI target of the specified iSCSI port.

Parameters

h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.
Target	The name of the iSCSI target.

getiscsiportstats

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getiscsiportstats <MAC>
```

Description

This command shows all the port statistics for a specified port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters..
MAC	The MAC address of the iSCSI port.

getlunlist

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> getlunlist <WWPN> <TargetWWN>
```

Description

This command shows the LUNs attached to the FC and FCoE target of the specified FC/FCoE port.

Parameters

h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
Target WWPN	The WWPN of the iSCSI target.

getpcidata

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getpcidata <WWPN | MAC>
```

Description

This command is used to get the PCI register details for FC, FCoE, NIC and iSCSI ports.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.

getpginfo

Syntax

```
elxvcpcmd.exe  v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getpginfo <WWPN>
```

Description

This command shows the priorities and bandwidth percentages for all the priority groups for the port. Additionally, this command displays the number of priority groups supported by an adapter.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

getportstatistics

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getportstatistics <WWPN>
```

Description

This command is used to extract the statistics for a designated FC or FCoE port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

getretentioncount

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getretentioncount <WWN | MAC>
```

Description

This command shows the diagnostic dump file retention count set on a port.

Note: The retention count applies to all adapters in the server.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC or iSCSI port.

getsessioninfo

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getsessioninfo <MAC> <Target> <TSIH | <ISID_Qual
Target_IP>>
```

Description

This command lists all session information for a specified session. You must specify the iSCSI target name <Target> and either the TSIH <TSIH> of the session or the session's ISID Qualifier <ISID_Qual> and the target's IP address <Target_IP>. These parameters tell the command to gather the information from the specified target and session. You can find the TSIH and ISID qualifier by running the ListSessions command.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
MAC	The MAC address of the iSCSI port.
Target	The target's iSCSI name enclosed in quotes (string length:11-255).
TSIH	The TSIH value of the session (value: 1-65535).
ISID_Qual	The ISID qualifier of the session (value: 0-65535).
Target_IP	The Target's IP address.

Note: You must specify either the TSIH value or the ISID qualifier. If ISID qualifier is specified you must also specify the Target's ID address.

getvpd

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> getvpd <WWPN | MAC>
```

Description

This command shows the VPD details for the specified port on the adapter.

Parameters

h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.

getwwncap

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> getwwncap <WWPN>
```

Description

This command shows the WWN capabilities of the specified port.

Parameters

h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

getxcvrdata

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> getxcvrdata <WWN | MAC>
```

Description

This command shows transceiver data such as vendor name and serial number.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

hbaattributes

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> hbaattributes  <WWPN | MAC>
```

Description

This command shows a list of all adapter attributes for the specified port on the adapter. This command is supported only at the host level.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.

installadapterlicense

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> installadapterlicense <WWPN | MAC> [Licence File Path]
```

Description

This command shows a list of the manageable Emulex adapters found by remote out-of-band (TCP/IP) discovery. For NIC ports of OneConnect adapters, instead of the port WWPN, the MAC address is displayed. The node WWPN and fabric WWPN are not displayed.

Parameters

`v`	The vCenter server IP address.
`u`	The user name for the vCenter server.
`p`	The user password for the vCenter server.
`h`	The IP address of the ESX host with Emulex adapters.
`WWPN`	The WWPN of a port on the ESX host with Emulex adapters.
`MAC`	The MAC address of the NIC port.
`Licence File Path`	The local file path of the license file to be installed.

Note: The command InstallAdapterLicense applies to UNCAs only.

listhbas

Syntax

For a cluster:

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<c=clustername> listhbas
```

For a host:

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> listhbas
```

Description

This command shows a list of the manageable Emulex adapters found by remote out-of-band (TCP/IP) discovery. For NIC ports of OneConnect adapters, instead of the port WWN, the MAC address is displayed. The node WWN and fabric WWN are not displayed.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
c	The cluster name in the vSphere console.
h	The IP Address of the ESX host with Emulex adapters.

listsessions

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> listsessions <MAC> <Target>
```

Description

This command lists all the sessions on a specified target. The iSCSI target name <Target> instructs the command to gather the information from the listed iSCSI target name.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
MAC	The MAC address of the iSCSI port.
Target	The iSCSI target name.

listvms

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> listvms <WWPN>
```

Description

This command lists all virtual machines and their information for all manageable ports.

If you specify the host with the "h=<host>" option or just give the physical WWPN, only the virtual machines for that host return. If you specify the physical port and the virtual port, only the virtual machine for the specified virtual port returns.

The virtual machine name is only displayed if the virtual port is associated with a virtual machine on VMware ESX 4.1 or ESXi 5.0 and 5.1. If you are running this command on any other server that has virtual ports, you will not see the virtual machine name.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

listvports

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> listvports <WWNP>
```

Description

This command lists virtual ports on the specified physical port. Leaving the physical WWPN parameter blank lists all virtual ports on all manageable hosts that support virtual ports.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

loadlist

Note: Loadlist is not supported for OneConnect adapters.

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> loadlist <WWPN>
```

Description

This command shows the flash parameters for a given FC port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

loopbacktest

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> loopbacktest <WWPN | MAC> <Type> <Count> <StopOnError>
[Pattern]
```

Description

This command is used to run a loopback test on a given FC, FCoE, NIC or iSCSI port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC or iSCSI port.
Type	Type of loopback test to run: 0 = PCI LoopBack Test 1 = Internal LoopBack Test 2 = External LoopBack Test (requires loopback plug) 3 = DMA Loopback Test 4 = PHY Loopback Test 5 = MAC Loopback Test **Note:** Loopback tests 0 and 1 are not supported for OneConnect adapters. Loopback tests 3, 4 and 5 are only supported for OneConnect adapters.
Count	The number of times to run the test (0 = run test infinitely, Range = 1...99,999)
StopOnError	Checks if the test must be halted on error. 0 = No halt 1 = Halt

`Pattern (optional)`	1 to 8 hexadecimal bytes to use for loopback data (for example: 1a2b3c4d)

Example:

elxvcpcmd.exe `v=<vcenter_server> u=<vc_username> p=<vc_password> h=<esx_host> loopbacktest 00-00-c9-93-2f-9f 4 120 0`

pcidata

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> pcidata <WWPN | MAC>
```

Description

This command shows the PCI attributes for the port specified on the adapter.

Parameters

`v`	The vCenter server IP address.
`u`	The user name for the vCenter server.
`p`	The user password for the vCenter server.
`h`	The IP Address of the ESX host with Emulex adapters.
`WWPN`	The WWPN of a port on the ESX host with Emulex adapters.
`MAC`	The MAC address of the NIC port.

portattributes

Supported by

Windows

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> PortAttributes <WWPN | MAC>
```

Description

This command shows a list of all port attributes for the port specified on the adapter.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.

posttest

Note: The posttest command does not apply to the LPe16000 family of adapters.

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> posttest <WWPN | MAC>
```

Description

This command runs the POST on a specified FC port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC or iSCSI port.

readwwn

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> showpersonalities <WWPN | MAC> [ReadType]
```

Description

This command shows the WWN details of the specified port and category.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.
ReadType	Valid types are: 0 =Volatile 1 = Non-volatile 2 = Factory default 3 = Current 4 = Configured

reset

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> reset <WWPN>
```

Description

This command resets the adapter. An adapter reset can require several seconds to complete, especially for remote devices. When the reset is completed, the system command prompt is displayed.

Note: Supported only for FC and FCoE ports. Not supported for NIC and iSCSI ports.

Note: For OneConnect FCoE ports, this command only resets the driver to update changed driver parameters that require a driver reset. It does not cause a hardware reset of the adapter port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

restorewwn

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> restorewwn <WWPN> <RestoreType>
```

Description

This command restores the WWN value of the specified port.

Parameters

`v`	The vCenter server IP address.
`u`	The user name for the vCenter server.
`p`	The user password for the vCenter server.
`h`	The IP Address of the ESX host with Emulex adapters.
`WWPN`	The WWPN of a port on the ESX host with Emulex adapters.
`RestoreType`	Valid types are: 0 = Restore Default WWNs 1 = Restore NVRAM WWNs

saveconfig

Note: Driver parameters that are set temporarily and globally (using the "G" and "T" flags) must be read using the "getdriverparams" elxvcpcmd command to view the current value of the parameter. The "getdriverparamsglobal" elxvcpcmd command returns only permanently set driver parameter values. Additionally, if temporary, global values have been set for one or more driver parameters, the "saveconfig" elxvcpcmd command must be run with the "N" flag (using the "N" flag is analogous to the elxvcpcmd command "getdriverparams") to force the driver parameter values for the specified adapter to be saved. Inaccurate values may be saved if the "G" flag is used for this command.

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> saveconfig <WWN> <FileName> <Flag>
```

Description

This command saves the specified FC/FCoE adapter's driver parameters to a file on an ESX host. The resulting file contains a list of driver parameter definitions in ASCII file format with definitions delimited by a comma. Each definition is of the form:

<parameter-name>=<parameter-value>.

The command saves either the values of the global set, or those specific to the adapter in the Emulex Repository directory.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
FileName	The name of the local .dpv file.
Flag	Valid types are: G = Make change global (all adapters on this host) N = Make change non-global (adapter-specific)

serverattributes

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> serverattributes
```

Description

This command is used to retrieve basic information about the host such as the OS version and CIM provider version.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.

setbeacon

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> setbeacon <WWN | MAC> <BeaconState>
```

Description

This command turns the beacon on or off.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	MAC address of the NIC or iSCSI port.
BeaconState	New state of the beacon: 0 = Off 1= On

setcablenvp

Note: This command supports only OneConnect OCe11100 T (10G Base-T) series adapters.

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> setcablenvp <WWN | MAC> <NPV>
```

Description

This command sets the nominal velocity of propagation (N-V-P), required for the TDR test, for the cable that connects to the physical port associated with the WWPN or MAC.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC or iSCSI port.
NVP	A percentage value between 1 and 100 (Consult your cable documentation to obtain the proper NVP value).

setcnapgbw

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> setcnapgbw <WWPN | MAC> <BW0>...<BW7>
```

Description

This command sets the bandwidth percentage of a priority group on a given FCoE, NIC or iSCSI port according to the following rules:

- Bandwidths BW0 to BW7 must add up to 100%.
- Bandwidth can be assigned to a priority group that has priorities.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.
BW0 to BW7	The bandwidth for priority group 0 to 7.

Example:

This command sets the bandwidth of PGID0 to 50 PGID1 to 50 and the rest to 0%.

```
elxvcpcmd.exe setcnapgbw 10:00:00:00:c9:3c:f7:88 50 50 0 0 0 0 0 0
```

setdcbparam

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> setdcbparam <WWPN | MAC> <Param> <Value>
```

Description

This command configures the DCB and LLDP settings on the OneConnect adapter.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

MAC	The MAC address of the NIC or iSCSI port.
Param	See below.
Value	See below.

OneConnect Adapter Parameters and Values (1= enabled 0 = disabled)

Note: The OneConnect adapter parameters doe not apply to LP21xxx adapters.

DCBXState – The current DCBX (Data Center discovery and Capability exchange protocol) state.

DCBXMode – The DCBX mode can be either DCB or CIN.

Note: DCBX mode also configures FIP mode. If DCBX mode is DCB, FIP is enabled. If it is CIN, FIP is disabled.

PFCEnable – Enabled means that flow control in both directions (Tx and Rx) is enabled.

FCoEPriority – You must specify a single priority (0-7). [only for FCoE adapters]

iSCSIPriority – You must specify a single priority (0-7). [only for iSCSI adapters]

PFCPriorities – Specify PFCPriorities as a single priority or as a list of comma separated values. Comma separated list of up to 7 values ranging from 0-7.

Default – Setting the SetDCBParam arguments to default sets all UCNA DCB params (including priority groups) to their default values.

For example:

elxvcpcmd setdcbparam <WWPN|MAC> defaults

Link Layer Discovery Protocol (LLDP) Parameters and Values (1= enabled 0 = disabled)

TxState (Transmit State) – DCBX uses Link Layer Discovery Protocol (LLDP) to exchange parameters between two link peers. For the DCBX protocol to operate correctly, both LLDP Rx and Tx must be enabled. If either Rx or Tx is disabled, DCBX is disabled.

RxState (Receive State) – DCBX uses LLDP to exchange parameters between two link peers. For the DCBX protocol to operate correctly, both LLDP Rx and Tx must be enabled. If either Rx or Tx is disabled, DCBX is disabled.

TxPortDesc (Transmit Port Description) – Provides a description of the port in an alpha-numeric format. The value equals the ifDescr object, if the LAN device supports RFC 2863.

TxSysDesc (Transmit System Description) – Provides a description of the network entity in an alpha-numeric format. This includes the system's name and versions of hardware, operating system and networking software supported by the device. The value equals the sysDescr object, if the LAN device supports RFC 3418.

TxSysName (Transmit System Name) – Provides the system's assigned name in an alpha-numeric format. The value equals the sysName object, if the LAN device supports RFC 3418.

TxSysCap (Transmit System Capabililities) – Indicates the primary function(s) of the device and whether or not these functions are enabled on the device. The capabilities are indicated by two octets. Bits 0 through 7 indicate Other, Repeater, Bridge, WLAN AP, Router, Telephone, DOCSIS cable device and Station respectively. Bits 8 through 15 are reserved.

Where multiple values are possible, specify them with a comma-separated list.

Example:

elxvcpcmd v=12.345.678.901 u=username p=password h=12.345.678.123 setdcbparam 00-00-c9-3c-f7-88 fcoepriority 3

setdcbpriority

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> setdcbpriority <WWN | MAC> <PFC Priorities> <Priorities
of PGID0> < Priorities of PGID1>...<Priorities of PGID7>
```

Description

This command sets the priorities for a priority group. The values must be set according to the following rules:

- The priorities range from 0 to 7.
- The Priority group IDs (PGID) range from 0 to 7.
- A priority can exist in only one priority group.
- All priorities must appear once in any of the eight (PG0-PG7) priority groups.
- Each set of priorities for a group must be separated by a space.
- Specify multiple priorities for the same group by a comma-separated list.
- To specify none, use "-" for the argument.
- The same priority values cannot be specified to different groups.
- All priorities (0 to 7) must be assigned to some PGID.
- Not all PGIDs must be assigned a priority.
- Not all adapters support two PFC priorities and eight priority groups. For Adapters, if you exceed the PFC priorities or priority groups an error message appears.

FCoE Adapter Specific Rules:

- Minimum of one and a maximum of two PFC priorities can be configured.
- One of the PFC priorities must match FCoE priority.
- The additional PFC priority must be assigned to a priority group which has no other priorities.
- The FCoE priority must be assigned to a priority group which has no other priorities.

iSCSI Adapter Specific Rules:

- Minimum of one and a maximum of two PFC priorities can be configured.
- One of the PFC priorities must match iSCSI priority.
- The additional PFC priority must be assigned to a priority group which has no other priorities.
- The iSCSI priority must be assigned to a priority group which has no other priorities.

NIC Adapter Specific Rules:

- Only one PFC priority can be configured.
- The PFC priority must be assigned to a priority group which has no other priorities.

Parameters

`v`	The vCenter server IP address.
`u`	The user name for the vCenter server.
`p`	The user password for the vCenter server.
`h`	The IP Address of the ESX host with Emulex adapters.
`WWPN`	The WWPN of a port on the ESX host with Emulex adapters.
`MAC`	The MAC address of the NIC or iSCSI port.
`PFCPriorities`	PFC priority that is a comma separated list of up to 7 values ranging from 0-7.
`Priorities of PGID`	Priority group membership that is a comma separated list of priorities ranging in value for 0-7.

Example:

elxvcpcmd v=12.345.678.901 u=username p=password h=12.345.678.123 setdcbpriority 10:00:00:00:c9:3c:f7:88 3 0,1,2,4,5,6,7 3 0 0 0 0 0 0

setdriverparam

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> setdriverparam <WWPN | MAC> <Flag1> <Flag2> <Param>
<Value>
```

Description

This command sets the driver parameter at the port or global level, either permanently or temporarily for the specified port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.
Flag1	L=Local (all adapters on this host) G=Global (all adapters on this host)
Flag2	P=Permanent (persists across re-boot) T=Temporary.
Param	The name of the driver parameter.
Value	The value of the driver parameter.

setdriverparamdefaults

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> setdriverparamdefaults <WWPN | MAC> <Flag1> <Flag2>
```

Description

This command restores the driver parameter to the default value at the port or global level, either permanently or temporarily for the specified port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

MAC	The MAC address of the NIC port.
Flag1	L=Local (all adapters on this host) G=Global (all adapters on this host)
Flag2	P=Permanent (persists across re-boot) T=Temporary.

setdumpdirectory

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> setdumpdirectory <WWN | MAC> <DumpDirectory>
```

Description

Use the setdumpdirectory command to set the dump directory for a given FC/FCoE, NIC or iSCSI port. To use the SetDumpDirectory command, you must have a directory mapped under /vmfs/volumes/ where the files will be placed.

Note: The dump directory applies to all adapters in the server. There is no separate dump directory for each adapter.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.
DumpDirectory	The directory under /vmfs/volumes that you created to store the dump files.

Example:

elxvcpcmd v=12.345.678.901 u=username p=password h=12.345.678.123 setdumpdirectory 10:00:00:00:c9:61:f2:64 vcenter-datastore

This example shows the dump directory set to /vmfs/volumes/vcenter-datastore.

setfipparams

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> setfipparams <WWPN> <Param> <Value>
```

Description

This command sets the FIP parameters of the adapter in FCoE mode.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
Param	FIP parameter name (pfabric, pswitch, vlanid, fcmap and cinvlanid).
Value	FIP parameter value and the valid range for the FIP parameter. pfabric – 8 byte fabric name (format XX:XX:XX:XX:XX:XX:XX:XX) pswitch – 8 byte switch name (format XX:XX:XX:XX:XX:XX:XX:XX) vlanid – 2 byte VLAN ID [0-4095] OR 'any' for any valid VLANID fcmap – 3-byte FC_map, 0x0EFCxx cinvlanid – 2-byte VLAN_ID [0-4095]

Example:

```
elxvcpcmd  v=12.345.678.901 u=username p=password h=12.345.678.123
setfipparams 10:00:00:00:c9:5b:3a:6d fcmap 0x0efc99
```

setpfcthrottle

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> setpfcthrottle <WWPN> <Flag>
```

Description

This command returns the PfcThrottle state as enabled or disabled for OCe10102 (UCNA) adapters only.

Note: The PFC Throttle state returns when using the PortAttributes command for OneConnect adapters. However for OneConnect adapters with older firmware that does not support PfcThrottle and for non-OneConnect adapters, the PFC Throttle state does not return when using the PortAttributes command.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
Flag	0 – Disabled 1 – Enabled

setphyportspeed

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> SetPhyPortSpeed <WWPN | MAC> <Mode> [Speed [Length]]
```

Description

This command sets the port speed on OneConnect OCe11102 adapters.

Note: The SetPhyPortSpeed command is available in OneConnect OCe11102 adapters only.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port oof the FCoE port.
MAC	The MAC address of the UCNA port.
Mode	Mode number: 0 – Default 1 – Auto-Negotiate 2 – Force
Speed	Speed string that is required for Mode = 1 or 2 (s=10Gb/1Gb/100Mb).
Length	DAC cable length in meters (0-10, required for 10Gb SFP Plus interface type).

Note: When Mode = 0, the Speed and Length arguments are ignored. When Mode = 1, the Length arguments is ignored.

Example:

The following example configures the port to a forced speed of 1 Gb/sec with a cable length of 4 meters.

elxvcpcmd.exe v=11.190.705.200 u=username p=password h=11.190.206.300 setphyportspeed 2 1Gb 4

setportenabled

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> setportenabled <WWPN | MAC> <Flag>
```

Description

This command is used to toggle the enable or disable status for an FC, FCoE, NIC or iSCSI port on a host.

Note: Ensure that all I/O traffic on the port is stopped before disabling the port.

Note: When the SetPortEnabled command disables a FC port, the adapter must be reset to activate the new setting. Only OneConnect™ adapters do not require a reset when the adapter port is enabled or disabled.

Parameters

`v`	The vCenter server IP address.
`u`	The user name for the vCenter server.
`p`	The user password for the vCenter server.
`h`	The IP Address of the ESX host with Emulex adapters.
`WWPN`	The WWPN of a port on the ESX host with Emulex adapters.
`MAC`	The MAC address of the NIC port.
`Flag`	0 – Disabled 1 – Enabled

setretentioncount

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> setretentioncount <WWN | MAC> < RetentionCount >
```

Description

This command specifies the maximum number of diagnostic dump files for the adapter. When the count reaches the limit, the next dump operation deletes the oldest file.

Note: The retention count applies to all adapters in the server.

Parameters

`v`	The vCenter server IP address.
`u`	The user name for the vCenter server.
`p`	The user password for the vCenter server.
`h`	The IP Address of the ESX host with Emulex adapters.
`WWPN`	The WWPN of a port on the ESX host with Emulex adapters.
`MAC`	The MAC address of the NIC or iSCSI port.
`RetentionCount`	The number of dump files to retain.

setvccred

Syntax

```
elxvcpcmd.exe setvccred v=<vCenter IP/Name> u=<username>
p=<password>
```

Description

While executing a set of CLI commands, you need to enter vCenter credentials repeatedly. By executing the "setvccred" command first, you can save these credentials including vCenter server name/IP, username and password to a file in an encrypted format and execute subsequent commands without use of vCenter credentials.

Using this command is optional. You can continue to execute the commands providing all credentials.

Note: This command does not apply to ports, ports, or adapters.

Parameters

`v`	The vCenter server IP address.
`u`	The user name for the vCenter server.
`p`	The user password for the vCenter server.

Example

Execute setvccred first:

```
elxvcpcmd.exe setvccred v=12.345.678.901 u=username p=password
```

Subsequent commands can be:

New format:

```
elxvcpcmd.exe h=12.345.678.123 listhbas
```

-or-

Old Format:

```
elxvcpcmd.exe v=12.345.678.901 u=username p=password
h=12.345.678.123 listhbas
```

showisnsserver

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> showisnsserver < MAC>
```

Description

This command shows the currently configured Internet Storage Name Server. This command also indicates whether or not iSNS discovery is enabled.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the iSCSI port.

showlicenseadapterfeatures

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> showlicenseadapterfeatures <WWPN | MAC>
```

Description

This command shows the licenses available for the adapter to which the specified port belongs.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.

WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.

showlicenseadapterid

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> showlicenseadapterid <WWPN | MAC>
```

Description

This command shows the license ID of the adapter to which the specified port belongs.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.

showpersonalities

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> showpersonalities <WWPN | MAC>
```

Description

This command shows the personalities of the adapter to which the specified port belongs.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.

showtarget

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> showtarget <MAC>
```

Description

This command shows the iSCSI target details of the adapter to which the specified iSCSI port belongs.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.

targetmapping

Syntax

```
elxvcpcmd.exe  v=<vcenter server> u=<vc_username> p=<vc_pwd>
<h=ESXhostIP> targetmapping <WWPN>
```

Description

This command shows the targets attached to the FC and FCoE of the specified port.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.

tdrtest

Note: This command supports only OneConnect OCe11100 10G Base-T series adapters.

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> tdrtest <WWPN | MAC>
```

Description

This command runs a TDR test on a given 10GBase-T adapter.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
WWPN	The WWPN of a port on the ESX host with Emulex adapters.
MAC	The MAC address of the NIC port.

umcEnable

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> UmcEnable <MAC Address> <0 | 1>
```

Description

The command enables UMC on an adapter containing a NIC function with a specific MAC address.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
MAC	MAC address of any NIC function on the physical adapter port.
umcEnable state	• 0 for Disable • 1 for Enable

umcgetparams

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> umcgetparams <MAC>
```

Description

The command's output is the current UMC state for the adapter. A table showing the port's channels along with their UMC properties is displayed. Because the displayed UMC channels are based on all physical ports, some adapters show only 2 or 3 channels instead of 4; that is all the physical port allows.

Note: The Channel Type property shows what protocol is running on the channel. This is controlled by the CLI's "ChangePersonality" command and not the UMC commands. See “changepersonality” on page 152 for more information.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
MAC	MAC address of any NIC function on the physical adapter port.

umcSetBW

Note: This command is not available for 1 Gb ports.

Syntax

```
>elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> UmcSetBW <MAC Address> <MinBW0,MaxBW> [MinBW1,MaxBW1]
[MinBW2,MaxBW2] [MinBW3,MaxBW3]
```

Description

This command sets the minimum and maximum bandwidth for up to 4 channels on the physical port. The total of the minimum bandwidths must add up to 100%. The total of the maximum bandwidths must be greater than or equal to the minimum bandwidths and have a maximum of 100 %. When only 3 channels are available, specifying MinBW3,MaxBW3 causes an error. When only 2 channels are available, specifying MinBW2,MaxBW2 and MinBW3,MaxBW3 causes an error.

Note: A system reboot is not required for the change take effect.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
MAC	MAC address of any NIC function on the physical adapter port.
Bandwidth Value	
MinBW0,MaxBW0	Minimum and maximum bandwidths for channel 0
MinBW1,MaxBW1	Minimum and maximum bandwidths for channel 1
MinBW2,MaxBW2	Minimum and maximum bandwidths for channel 2
MinBW3,MaxBW3	Minimum and maximum bandwidths for channel 3

umcSetChanLink

Note: This command is not available for 1 Gb ports.

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> UmcSetChanLink <MAC Address> <C0> <C1> [C2] [C3]
```

Description

This command enables or disables each UMC channel logical link state. When only three channels are available, specifying C3 causes an error. When only 2 channels are available, specifying C2 and/or C3 causes an error.

Note: A system reboot is required for the change take effect.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
MAC	MAC address of any NIC function on the physical adapter port.
Channel Link State	
C0	UMC channel 0 logical link state value (1=enable, 0=disable)
C1	UMC channel 1 logical link state value (1=enable, 0=disable)
C2	UMC channel 2 logical link state value (1=enable, 0=disable)
C3	UMC channel 3 logical link state value (1=enable, 0=disable)

umcSetLPVID

Note: This command is not available for 1 Gb ports, or for FCoE and iSCSI ports.

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> UmcSetLPVID <MAC Address> <LPVID0> <LPVID1> [LPVID2]
[LPVID3]
```

Description

This command sets the Logical Port VLAN IDs (LPVID) for each channel on a physical port. LPVID values are in the range of 1-4094. When only three channels are available, specifying LPVID3 causes an error. When only 2 channels are available, specifying LPVID2 and LPVID3 causes an error.

Note: A system reboot is not required for the change take effect.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
MAC	MAC address of any NIC function on the physical adapter port.
LPVID State	
LPVID0	LPVID for channel 0
LPVID1	LPVID for channel 1
LPVID2	LPVID for channel 2
LPVID3	LPVID for channel 3

Considerations for Using umcSetLPVID

- LPVID values are in the range of 2-4094.
- Every NIC channel on a physical port must have a unique LPVID.
- For FCoE and iSCSI channels, '0' must be entered since LPVIDs cannot be set for storage channels.
- When only three channels are available, specifying LPVID3 causes an error.
- This command is not supported on 1 Gb ports.
- If UMC is disabled when this command is executed, a warning message will be displayed indicating that UMC is currently disabled and must be enabled for these changes to take effect.

updateisnsserver

Syntax

```
elxvcpcmd.exe v=<vcenter_server> u=<vc_username> p=<vc_password>
h=<esx_host> updateisnsserver <MAC> <Server IP> <Port>
```

Description

This command updates the configured iSNS server. This command requires the server IP <Server_IP> and port number <Port> of the iSNS server be available to respond to the iSNS requests.

Parameters

v	The vCenter server IP address.
u	The user name for the vCenter server.
p	The user password for the vCenter server.
h	The IP Address of the ESX host with Emulex adapters.
MAC	The MAC address of the iSCSI port.

`Server_IP`	IP address of the iSNS server to configure.
`Port`	Port number of the iSNS server to configure (value: 1024-65535).

version

Syntax

```
elxvcpcmd.exe version
```

Description

This command shows the version of the CLI installed.

Parameters

None.

Viewing Audit Logs Using the CLI Command

Note: All active management actions performed are saved to a log file specific to the action. The maximum size of a log file is 2 MB. If the size of the log file exceeds this limit, old log entries are deleted for the particular event.

Syntax

```
elxvcpaudit.exe <event name>
```

Note: If the event name is not specified, all events are displayed.

Description

You can use the elxvcpaudit.exe script to log all the historical active management performed through the vSphere console on the Emulex adapters. To see the usage information, run the script with no parameters specified. All supported events are displayed.

Parameter

`event name`	The command name describing the appropriate active management action performed.

List of Supported Event Names

`installadapterlicense`	Shows if any licenses are installed on the UCNA adapter.
`changepersonality`	Shows if any personality changes are performed on the UCNA adapter.
`loopbacktest`	Shows diagnostic tests run on the UCNA adapter.
`setdriverparam`	Shows the driver parameters changed on a LightPulse or OneConnect adapter at both port and global levels.

`setdcbparam`	Shows the changes to the DCB parameters on the UCNA adapter.
`setbeacon`	Shows the beacon settings on the UCNA adapter.
`setfipparam`	Shows the changes to the FIP parameters on the UCNA adapter.
`download`	Shows the firmware download activities performed.
`reset`	Shows the port reset activities performed.
`changewwn`	Shows the WWN change activities performed.

Example

```
Audit log  for       : changewwn
--------------------

User Name            : Administrator
Date and Time        : 2011-06-16T19:25:12Z
Operation            : ChangeWWNJobInfo
Host Name            : 10.192.203.179
Adapter Id           : BT11161224
Port Id              : 10:00:00:00:C9:BB:1E:77
Message              : Successfully changed WWN.

New State
                     New WWPN = 10:00:00:00:C9:BB:1E:78
                     New WWNN = 20:00:00:00:C9:BB:1E:78
                     Volatile = false

Old State
                     Old WWPN = 10:00:00:00:C9:BB:1E:77
                     Old WWNN = 20:00:00:00:C9:BB:1E:77
```

11. Troubleshooting

There are several circumstances in which your system may operate in an unexpected manner. The Troubleshooting section explains some of these circumstances and offers one or more solutions for each issue.

Issues and Resolutions

Table 11-1 Troubleshooting Issues and Resolutions

Issue	Resolution
The Emulex OneCommand tab is not visible in the vSphere console.	In the vSphere console select the **Plug-in** menu and choose **Manage Plug-ins**. In the Plug-in Manager window check the status of the Emulex OCM for VMware vCenter (Emulex OneCommand). The status must be “Enabled”. If it is not, enable it. On the machine where OCM for VMware vCenter is installed, make sure the port numbers configured during the installation are open and dedicated to the plug-in server only. No other service should be listening on this port.
When you select the Emulex OneCommand tab in the vSphere console, a message appears indicating that the Adobe Flash player is required.	Ensure the version of Adobe Flash player installed is 11.2 or later. If you have not installed the Adobe Flash player, you can download it from the Adobe website.
When you select the Emulex OneCommand tab in the vSphere console, the Emulex Device Management tree-view does not display any elements.	Ensure that you have the required privileges to view information in the vSphere console.
There is slow response from OCM for VMware vCenter.	Ensure that the following are on the same network: • ESX servers managed by the OCM VMware for vCenter server • Systems hosting the OCM for VMware vCenter server • OCM for VMware vCenter

Firmware update fails on a LightPulse or a OneConnect adapter, or installing licenses fails on a OneConnect adapter.	On the ESX host, check the firewall settings and ensure that the HTTP/HTTPS ports are open. You can open the port using the command:
	`esxcfg-firewall -o  <port,tcp|udp,in|out,name>`
	For ESXi, use the following command to disable the firewall:
	`esxcli network firewall unload`

Firmware update fails with the error message “Error reading resource”.	Check the memory space in the ESXi host and clean up the old logs.
When you make any changes to the ESX/ESXi host, such as plugging cables, unplugging cables, or storage references, OCM for VMware vCenter does not reflect the change immediately.	Click **Refresh** in the GUI. If the change is not reflected, restart ‘sfcb’ on the ESX host using the command: `/etc/init.d/sfcbd-watchdog restart` Click **Refresh** again in the GUI.

Table 11-1 Troubleshooting Issues and Resolutions (Continued)

Issue	Resolution
On a Windows 7 x64 operating system, executing the CLI commands using the executables results in unnecessary error traces.	The C disk is highly protected; even the administrator account has limited privileges. For example, the contents in the directory "C:\Program Files\" have no write and full control privileges. To remedy the problem: • Assign your account write and full control privileges to "C:\Program Files \". -or- • Install OCM for VMware vCenter on another disk, for example, D.